Pinson Valley PA
Ref. 23

DYNAMAC
CORPORATION
Environmental Services

Peachtree Center Tower
230 Peachtree Street, N.W.
Suite 500
Atlanta, GA 30303

Telephone: 404-681-0933
Fax: 404-681-0894

NFRAP APPROVED
BJ 12/15/93

- Compounds in creek won't score
- NPDES and attribution issues indicate ESI Not indicated here

WPB/SAS
RECEIVED
NOV 15 1993
EPA - REGION IV
ATLANTA, GA

November 10, 1993

Mr. Narindar Kumar, Acting Chief
Site Assessment Section
U.S. EPA Region IV
345 Courtland Street, NE
Atlanta, Georgia 30365

Re: Work Assignment No. C04119 - Site Inspection Prioritization Report - ABC Coke Division of Drummond Corporation, Tarrant City, Jefferson County, Alabama
Document Control No. C04119-SIP-LC-372

Dear Narindar:

Enclosed please find the Site Inspection Prioritization Report for ABC Coke Division of Drummond Corporation, in Tarrant City, Jefferson County, Alabama. This report has been developed to partially fulfill requirements for TES VIII Work Assignment No. C04119, Task 5. This submittal includes a site map, supporting reference materials and a CERCLA Eligibility Form.

If you have any questions, please contact us at (404) 681-0933.

Sincerely,

DYNAMAC CORPORATION

Mitch Cohen
Site Manager

David L. Rusher
Regional Manager

Enclosures

cc: Ken Meyer, EPA Region IV Project Officer (w/o enclosures)
Jack Silvey, Dynamac TES Program Manager (w/o references)
Deborah Vaughn-Wright, EPA Region IV Work Assignment Manager
Katharine Siders Franklin, Dynamac Work Assignment Manager (w/o references)
TES WA File

TES VIII WORK ASSIGNMENT NO. C04119
SITE INSPECTION PRIORITIZATION
ABC COKE DIVISION OF DRUMMOND CORPORATION
TARRANT CITY, JEFFERSON COUNTY, ALABAMA
EPA ID NO. ALD000823179
WASTELAN NO. 0064

EPA REGION:	IV
CONTRACT NO.:	68-W9-0005; TES VIII
EPA WAM:	DEBORAH VAUGHN-WRIGHT
TELEPHONE NO.:	(404) 347-5065
DYNAMAC WAM:	KATHARINE SIDERS FRANKLIN
TELEPHONE NO.:	(404) 681-0933

DOCUMENT CONTROL NO. C04119-SIP-LC-372

Submitted to

U.S. ENVIRONMENTAL PROTECTION AGENCY

REGION IV

by

DYNAMAC CORPORATION

November 10, 1993

TES VIII WORK ASSIGNMENT NO. C04119
SITE INSPECTION PRIORITIZATION
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TABLE OF CONTENTS

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Introduction

Dynamac Corporation (Dynamac) has conducted this Site Inspection Prioritization (SIP) at the request of EPA Region IV under the Technical Enforcement Support (TES VIII) contract, Work Assignment No. C04119. The objective of this SIP was to evaluate the characteristics of the site and surrounding areas in order to provide a recommendation concerning further activities at the site. In order to achieve this objective, Dynamac has gathered and assimilated all readily available existing information concerning ABC Coke Division of Drummond Corporation (ABC Coke) and has either assembled or confirmed data concerning the population and environments in the vicinity of the site. Pertinent elements of the data gathered and evaluated are presented in the sections that follow. Any informational gaps in the data are also identified. The full name for ABC Coke is identified in several file documents as Alabama By-Products Corporation. However, the EPA WASTELAN data base, among other file material, indicates the name as ABC Coke Division of Drummond Corporation, which is the way it will be identified in this evaluation.

Site History and Description

ABC Coke (the plant) is a coke and coal chemical plant located on Alabama Street and Huntsville Avenue in Tarrant City, Jefferson County, Alabama, at 33° 35'15" north latitude and 86° 47'00" west longitude (Refs. 1; 2; 3) (see Figure 1). The area immediately surrounding the facility is mainly industrial: a sewage disposal plant is located west of the plant, two quarries are located southwest and north of the plant, and industrial complexes are located east and south of the plant. Fivemile Creek borders the plant on the north, and the Louisville and Nashville Railroad tracks are adjacent to the western perimeter of the plant (Refs. 1; 4, p. 5). The normal annual total precipitation in the area is 52 inches, and the mean annual lake evaporation is 42 inches, resulting in a net annual rainfall of 10 inches (Ref. 5, pp. 43; 63). The 2-year, 24 hour rainfall is approximately 4.5 inches (Ref. 6, p.95)

In 1920, ABC Coke built and began operations at the plant, producing coke and coal chemicals (Ref. 7, p. 3). The plant consists of a coking operation, numerous rail spurs and coal and coke storage yards on the western side of the

Source: Base map is a portion of the USGS 7.5 Minute Series Topographic Quadrangle map of Birmingham North, Alabama, 1959 (Photorevised 1970, 1978).

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Environmental Services

Figure 1 : Site Location Map

ABC COKE DIVISION OF DRUMMOND CORPORATION

Tarrant City, Jefferson County, Alabama

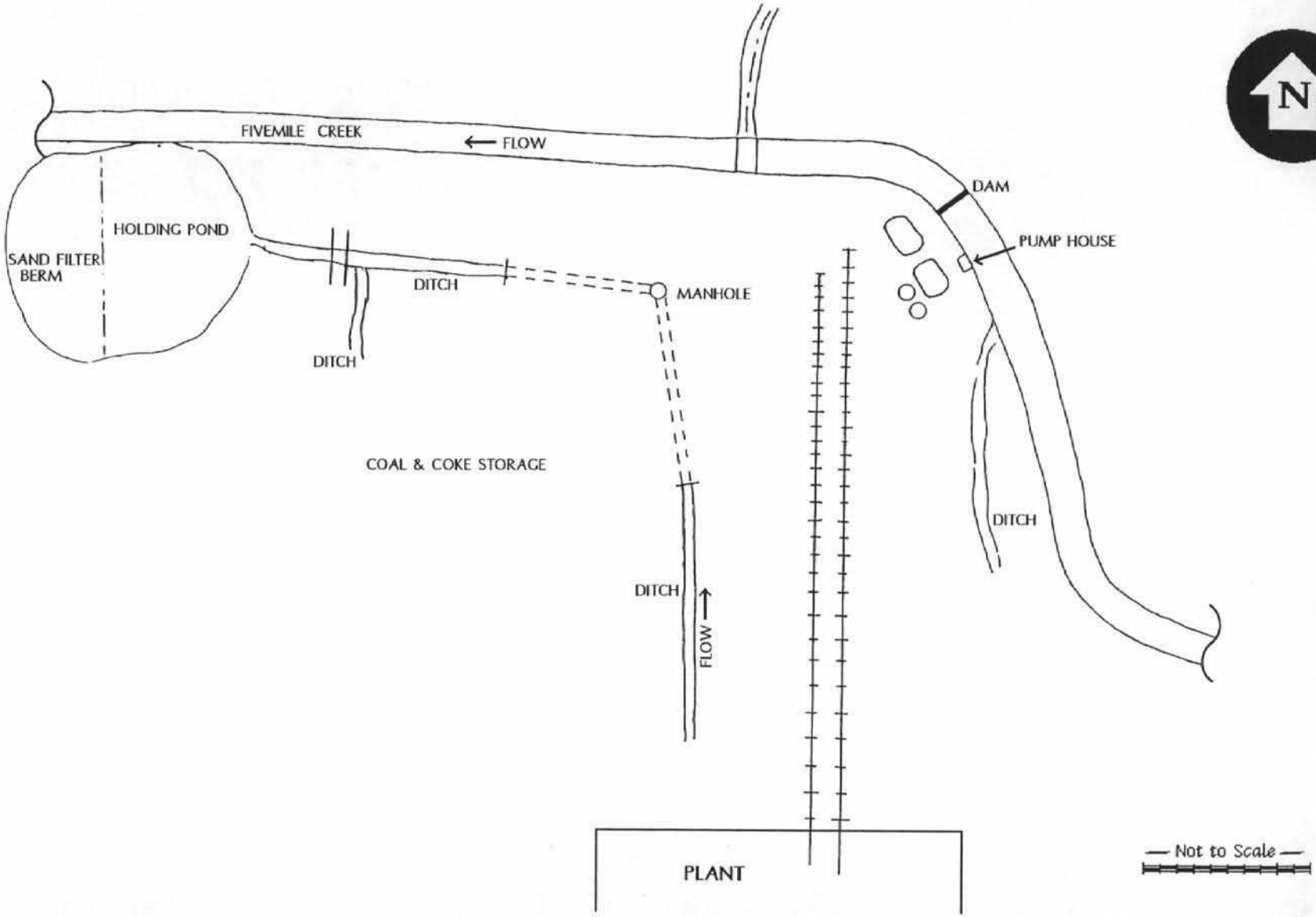
property. A wastewater treatment system is located at the north portion of the property and consists of an equalization pond, two concrete activated sludge clarifier units and a post-aeration pond. There is also a holding pond to contain runoff from the coal/coke storage areas (Ref. 7, pp. 1, 3). To date, the main focus of environmental investigations has been the wastewater treatment system and related ditches and ponds (see Figure 2) (Ref. 7, p. 1).

Regulatory History and Exclusions

On November 17, 1980, the plant submitted a Resource Conservation and Recovery Act (RCRA) Part A permit application to EPA to obtain interim status as a treatment facility (Ref. 8). On May 5, 1985, the facility requested withdrawal of its interim status as a hazardous waste treatment facility because decanter tank tar sludge (K087) produced in the coking operation was being recycled (Ref. 9). Withdrawal of interim status was first denied because EPA considered the K087 still present in the decanter tank, the mixing tank and the final storage tank to be hazardous waste. ABC Coke was required to submit a Part B application by November 8, 1985 (Ref. 10). However, on June 17, 1986, the request to withdraw interim status was granted because the plant had revised the recycling process. The K087 waste was scraped out of the decanter tank, funnelled through a small cone tank and double-bagged. The bags were stored in shallow metal tanks for less than 90 days, then placed in the furnaces with coal for coking and energy recovery. On June 17, 1986, the plant was granted the change of status to a generator rather than a treatment facility (Ref. 11). Currently, the plant is not regulated under RCRA (Refs. 16; 17).

A CERCLA notification was filed in 1980 for the possible landfilling of tar sludge (Ref. 8). No further information was presented concerning size, location or disposal history for such a landfill. On March 20, 1989 the plant was issued a National Pollutant Discharge Elimination System (NPDES) permit for the wastewater treatment system and discharge of wastewater to Fivemile Creek (Refs. 7, p. 4; 12). From February 1988 to July 1990 discharges from the wastewater treatment system exceeded limits for phenol, pH, copper, lead and zinc (Ref. 12, pp. 57-63). In addition to an NPDES permit, the plant has a permit issued by the Jefferson County Health Department for air emissions (Refs. 7, p. 4; 8, p. 2).

During an inspection which the Alabama Department of Environmental Management (ADEM) conducted on December 14, 1989, the plant was cited for numerous RCRA generator compliance violations which included lack of secondary containment around hazardous waste tanks, improper maintenance and inspection of the tank system, lack of "hazardous waste" labels on containers and tanks, lack of



Source: RCRA 3012 Site Inspection Report prepared by Environmental Protection Systems for Alabama Department of Environmental Management, March 1985.

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Figure 2 : Site Layout Map
ABC COKE DIVISION OF DRUMMOND CORPORATION
Tarrant City, Jefferson County, Alabama

properly posted signs at each entrance to active portions of the plant and near the agitator cone tank, failure to update annual training of personnel, failure to present a contingency plan in case of emergency and failure to keep copies of the manifests for the K087 waste disposed offsite (Refs. 13; 14; 15).

Summary of Previous Investigations

Three investigations were conducted by or on behalf of ADEM at the plant between 1980 and 1987. These investigations are summarized in Table 1.

TABLE 1

ABC COKE DIVISION OF DRUMMOND CORPORATION
TARRANT CITY, JEFFERSON COUNTY, ALABAMA

Investigation Summary

DATE	AGENCY	EVENT	SAMPLES COLLECTED	REFERENCE(S)
November 1980	Environmental Protection Systems, Inc., on behalf of ADEM	Preliminary Assessment	No Samples	18
January 1985	Environmental Protection Systems, Inc., on behalf of ADEM	Site Inspection	Sediment and sludge samples	7
June 1987	ADEM	TSDF Inspection	Sludge samples	19

TSDF = Treatment, storage, and/or disposal facility
ADEM = Alabama Department of Environmental Management

Table 2 presents contaminants detected in sludge and sediment samples collected from the plant during the January 1985 Site Inspection (SI) Environmental Protection Systems, Inc., (ESP) conducted for ADEM (Ref. 3). Five sediment and/or sludge samples were collected from a surface runoff ditch, Fivemile Creek and the equalization pond (Ref. 7 pp. 5, 6, 7, 21).

TABLE 2

ABC COKE DIVISION OF DRUMMOND CORPORATION
TARRANT CITY, JEFFERSON COUNTY, ALABAMA
SITE INSPECTION
ENVIRONMENTAL PROTECTION SYSTEMS, INC.
JANUARY 10, 1985

Summary of Sampling Data

SAMPLE NUMBER	SAMPLE LOCATION	ANALYTICAL RESULTS (ppm)		REFERENCE(S)
ABC-SD1-BG ("Black tar-like" sediment)	Surface runoff ditch near the treatment plant.	Naphthalene*	74.2	7, pp. 13, 28, 29
		Acenaphthylene	93.0	
		Fluorene	217.0	
		Anthracene	165.0	
		Benzo(k)fluoranthene	12.4	
		Phenanthrene	59.2	
		2-Methyl 4,6-dinitrophenol*	1,204.0	
		Cyanide*	4.03	
ABC-SD2-DI (Sediment)	Upstream of the holding pond and road in runoff ditch.	Naphthalene*	8.37	7, pp. 13, 28, 29
		Acenaphthylene	7.58	
		Fluorene	14.7	
		Anthracene	12.5	
		Benzo(k)fluoranthene	8.57	
		2-Methyl 4,6-dinitrophenol*	27.3	
		Cyanide*	3.43	
ABC-SD5-SD (Sludge)	Equalization basin.	Naphthalene*	357	7, pp. 13, 30, 31
		2,4-Dichlorophenol*	2,658	
		4-Chloro, 3-methylphenol*	809	
		Fluorene	204.0	
		Acenaphthylene	120.0	
		Anthracene	124.0	
		Cyanide*	9.29	
ABC-SD3-BG (Sediment)	Fivemile Creek, above the dam and the NPDES outfall from the plant.	2-Methyl 4,6-dinitrophenol*	<0.01	7, pp. 13, 28, 29
		Phenanthrene	<0.01	
		Cyanide*	4.14	
ABC-SD4-CR (Sediment)	Fivemile Creek, approximately 500 to 600 feet downstream of dam and NPDES outfall.	2-Methyl 4,6-dinitrophenol*	22.9	7, pp. 13, 28, 29
		Phenanthrene	4.45	
		Cyanide*	4.00	

* Contaminants regulated under NPDES permit
< = Contaminant not detected. The number is the Minimum Quantitation Limit
ppm = parts per million
NPDES = National Pollutant Discharge Elimination System

Sediment sample ABC-SD1-BG, which was designated as the background sample, was collected from the surface water runoff ditch near the treatment plant. This sample contained organic contaminants at higher concentrations than the sample collected from the ditch upstream of the holding pond (ABC-SD2-DI). Therefore, this sample was not an appropriate sample from which to establish background conditions in the runoff ditch. The results of sample ABC-SD4-CR compared to the background creek sample ABC-SD3-BG indicate that an observed release to Fivemile

Creek has occurred. Although the background sample location was upstream of the discharge from the wastewater treatment system, it was apparently downstream of the point of entry of another plant runoff ditch.

The scope of analyses for samples collected during the SI did not include analysis for metals. During the TSDF inspection conducted in 1987, sludge samples collected from the equalization basin, the post-aeration basin and the runoff basin (holding pond) were analyzed for only metals and cyanide. Analysis revealed the presence of arsenic, chromium, selenium and cyanide in all three samples, as well as mercury in the sample from the equalization basin.

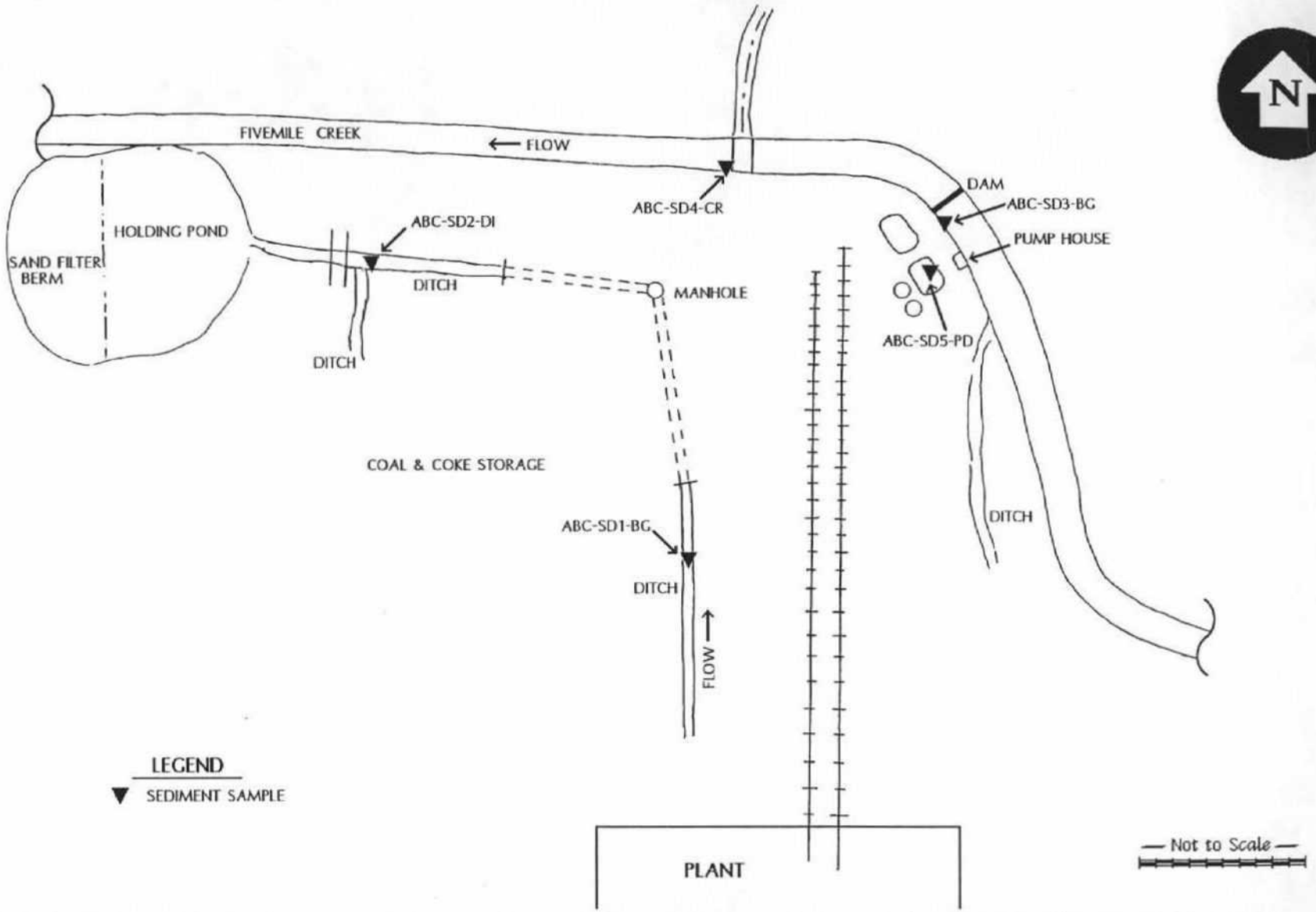
Sources and Waste Characteristics

Operations at the plant include the production of coke and coal chemicals. The plant produces decanter tank tar sludge from coking operations (K087 waste) which contains phenol and naphthalene (Refs. 2; 3, p. 2; 7, pp. 3, 4, 11, 12; 20; 21). Reportedly, prior to 1950 the decanter tank tar sludge was stored in a pile/pit at the rear of the property. However, in 1950 the decanter tank tar sludge was removed and used to charge the onsite furnaces along with coal. The plant no longer utilized the storage area for K087 waste. Currently, the sludge produced is recycled by combining it with unused coal for use as fuel in the coke ovens (Refs. 7, p. 4; 15; 18; 22; 23).

The plant also operates a wastewater treatment system which consists of a post-aeration pond, an equalization basin and two concrete-activated sludge-clarifier units. The pond and equalization basin are lined with clay and bentonite. During the sampling investigation which ADEM conducted in 1985, sludge samples collected from the equalization basin contained elevated levels of naphthalene, pyrene, 2,4-dichlorophenol and 4-chloro, 3-methylphenol. The dimensions of the equalization basin were estimated to be 30 by 40 feet, with the estimated depth of the sludge at approximately a half a foot (Ref. 7, p. 11; 21, 28, 29).

Runoff from the coal/coke storage areas is diverted into an onsite ditch which drains into a holding pond located on the western portion of the plant (Ref. 7, pp. 1, 16). Analysis of the environmental samples collected during the SI in 1985 indicated the presence of numerous polynuclear aromatic hydrocarbons (PAHs) and cyanide (Ref. 7, pp. 11, 12, 28, 29).

The available file material identifies neither the full extent of the contamination present at the plant, nor if the contamination found at the equalization basin is being adequately contained by the bentonite liner. Samples



Source: RCRA 3012 Site Inspection Report prepared by Environmental Protection Systems for Alabama Department of Environmental Management, March 1985.

DYNAMAC CORPORATION
Environmental Services

Figure 3 : Sample Location Map
ABC COKE DIVISION OF DRUMMOND CORPORATION
Tarrant City, Jefferson County, Alabama

were not collected from soils in this area; therefore, it is unknown if contamination exists beyond the confines of the basin. Oily tar-like material was observed in the upstream portion of the surface runoff ditch where sediment samples indicated the presence of organic contamination. This surface runoff ditch ultimately leads to a holding pond. Samples were not collected from this holding pond; therefore, it is not known if organic contamination is present at this source. Samples collected from the equalization basin, post-aeration basin and storm runoff basin (holding pond) during the 1987 TSDF inspection contained several metals (Refs. 7, p. 16; 19). Since samples collected from Fivemile Creek in 1985 were not analyzed for metals, it is possible that additional inorganic contamination from the site is present in the creek.

Groundwater Migration Pathway

The plant is located in the Birmingham-Big Canoe district of the Valley and Ridge physiographic province of Alabama approximately 1.5 miles from the Warrior Basin of the Cumberland Plateau. The topography in the Valley and Ridge physiographic province is characterized by parallel ridges and valleys that generally trend northeast to southwest (Ref. 24, pp. 2-4). The Birmingham-Big Canoe district is developed on a faulted asymmetrical anticlinorium that exposes limestones, dolomites, shales, sandstones and cherts (Ref. 25, p. 13). Many of the geologic formations dip steeply into the subsurface as a result of the intense folding (Ref. 25, p. 13). The plant is located in the Opossum Valley approximately 1.5 miles southeast of the Opossum Valley Fault (Ref. 24, p. 7). Elevations in the area range from 500 to 820 feet above mean sea level (msl). The elevation of the facility is approximately 520 feet above msl (Ref. 1).

Geologic units which crop out within a 4-mile radius of the plant include, in descending stratigraphic order: Quaternary alluvial and low terrace deposits, the Pottsville Formation, the Parkwood Formation, the Floyd Shale, the Bangor Limestone, the Hartselle Sandstone, the Pride Mountain Formation, the Tuscumbia Limestone, the Fort Payne Chert, the Maury Formation, the Chattanooga Shale, the Frog Mountain Sandstone, the Red Mountain Formation, the Atalla Chert Conglomerate member of the Chickamauga Limestone, the Chickamauga Limestone, the Knox Group undifferentiated, the Ketona Dolomite, the Conasauga Formation and the Rome Formation (Ref. 26 pp. 40, 41).

The plant is directly underlain by the Conasauga Formation. It is likely that the Conasauga Formation is mantled by a blanket of unconsolidated material (referred to as regolith) derived from the insitu weathering of the Conasauga Formation (Refs. 26, pp. 40, 41; 27, p. 6). In Jefferson County, this regolith consists of clay-rich soil with thin fragments of locally occurring chert and has

an average thickness of 35 feet (Ref. 27, p. 6). The Conasauga Formation consists of limestone, dolomitic limestone, dolomite and minor amounts of shale. The Conasauga Formation ranges from approximately 800 to 1,000 feet in thickness (Ref. 24, p. 9). The Conasauga Formation is underlain by the Rome Formation (Ref. 26. pp. 40, 41). The Rome Formation consists of thin beds of argillaceous limestone, chert and sandstone and is approximately 500 feet thick in the area (Ref. 26, p. 3).

Groundwater in the Valley and Ridge physiographic province occurs primarily in the regolith and in interconnected, solution-enlarged fractures in the carbonate units. The regolith which covers the Conasauga Formation bedrock may act as a reservoir that slowly releases groundwater into the underlying aquifer (Refs. 24, p. 11; 27, p. 12). Groundwater within the Conasauga Formation occurs in zones of increased permeability and porosity concentrated along solution channels. Permeability and porosity within the Conasauga Formation decreases with depth and is predominantly contained within the upper 300 feet of the unit (Ref. 27, p. 12). The processes of fracture enlargement has probably been enhanced in the site vicinity because of the presence of faults and joints in this part of Jefferson County (Refs. 25, p. 13; 28, p. 335). Groundwater movement in the area is controlled by gravity and is primarily from the relatively impermeable quartzite and slate ridges downward to the valleys and following the valleys downstream (Ref. 24, pp. 11-13). The direct infiltration of rainwater to the water table and gravity-controlled groundwater movement indicate that the aquifers in the area are unconfined (Ref. 24, pp. 11-13). The depth to the water table in the area is approximately 20 feet below land surface (bls) (Refs. 1; 24, p. 13, plate 1).

Five sinkholes are located within a 2-mile radius of the plant (Refs. 1; 24, plate 1). These sinkholes are located in an area that is underlain by naturally soluble carbonate units (Ref. 26, pp. 40, 41). Therefore, this area can be characterized as a karstic setting.

Residents within 4 miles of the plant utilize drinking water supplied by the city of Birmingham Water Department (CBWD) (Ref. 38). CBWD, which serves more than 1 million persons, maintains a surface water intake on the Cahaba River. CBWD also buys water from the Birmingham Industrial Board (BID). BID maintains surface water intakes on Inland Lake and Smith Lake. According to information obtained from CBWD, there are very few active groundwater wells used for drinking water within 4 miles of the plant (Refs. 29; 38).

Surface Water Migration Pathway

The plant is underlain by soils of the Urban land-Tupelo-Decatur soil association. The Urban land-Tupelo-Decatur soil association consists of urban land and moderately well-drained to well-drained soils which are slowly and moderately permeable. These soils are formed in cherty limestone colluvium or residuum (Ref. 30). The northern portion of the plant is located in the 100-year floodplain of Fivemile Creek; however, the southern portion is located in an area of minimal flooding (Refs. 31; 32).

Surface water runoff from the plant drains north into Fivemile Creek, which borders the plant on the north (Refs. 1; 7, p. 8). Treated wastewater is discharged from a process water inlet north into Fivemile Creek (Ref. 7, pp. 8, Site Diagram). Fivemile Creek has an average flow of 109 cubic feet per second (cfs) at a gauging station located 11 miles downstream from the plant. However, based on the creek's much smaller size at the plant, as shown on the topographic map, the flow rate adjacent to the plant is estimated to be in the range of 10 to 100 cfs. Fivemile Creek flows west along the entire 15-mile surface water pathway (Refs. 1; 33, p. 190).

There are no surface water intakes along the 15-mile surface water pathway. Fivemile Creek reportedly is used heavily for industrial discharge, including ABC Coke's discharge. The creek is also used for recreational fishing at some point (Refs. 7, p.8; 34). The range of the watercress darter (Etheostoma nuchale), which is a federally designated endangered fish, includes Jefferson County (Ref. 35). There are no wetlands located along the 15-mile surface water pathway (Ref. 1).

Air Migration and Soil Exposure Pathways

Selected demographic information presented below was collected to evaluate the air migration and soil exposure pathways. Possible impacts of airborne contamination were assessed using residential population, workers, schools and sensitive environments within 4 miles of the plant. Similarly, potential effects of exposure to surficial contamination at the plant were evaluated using accessibility of the plant and human and environmental populations onsite and within a 1-mile travel distance.

The plant is currently in operation, having approximately 2,600 workers; the plant property is fenced and guarded (Refs. 3, p. 5; 4; 36) The area surrounding the plant is residential and lightly industrial, with the nearest residence being approximately 200 feet north-northwest of the plant (Refs. 1; 4, pp. 4, 5). The

nearest school is located approximately three-quarters of a mile to the south of the plant (Ref. 1).

Population distribution within 4 miles of the plant was determined by using EPA's Graphical Exposure Modeling System (GEMS) data base. The estimated number of persons residing within the 4-mile radius is distributed as follows (Ref. 37):

Radial Distance	Persons
0 - 0.25 mile	211
0.25 - 0.50 mile	702
0.50 - 1 mile	4,258
1 - 2 miles	12,358
2 - 3 miles	23,280
3 - 4 miles	46,845
Total within 4 miles	87,654

The ranges of several federally designated endangered species include the study area, but no specific habitats have been identified. These species include the bald eagle (Haliaeetus leucocephalus), the Arctic peregrine falcon (Falco peregrinus tundrius), Bachman's warbler (Vermivora bachmanii), the wood stork (Mycteria americana), the red-cockaded woodpecker (Picoides borealis) and the darter watercress (Etheostoma nuchale) (Ref. 35).

Conclusion/Recommendations

The evaluation of available file material indicates that organic contaminants were detected in ditch sediment, the equalization pond and Fivemile Creek. It should be noted that Fivemile Creek is probably not fished in the industrial area of the plant due to numerous local wastewater discharges, but is likely to be fished further downstream. Limited impact to surrounding populations is expected via groundwater, air migration or direct exposure to waste due to minimal groundwater use and limited access to the plant. However, risk to onsite workers and the persons fishing in Fivemile Creek cannot be completely assessed due to incomplete characterization of onsite sources and possible contamination in areas of the creek used for fishing. Based on these considerations, Dynamac recommends further investigation for ABC Coke. This investigation should initially include an identification of areas of the creek which may be used for fishing, and should then proceed to sample collection and analysis for a full complement of hazardous constituents. Sample collection should focus on potential and previously

identified sources at ABC Coke as well as fished areas of the creek and should include background samples for all media sampled.

References

1. U.S. Geological Survey, 7.5 minute series Topographic Quadrangle Maps of Alabama: Birmingham North 1959 (Photorevised [PR] 1970 and 1976), Gardendale 1959 (PR 1979), Pinson 1959 (PR 1979), Irondale 1959 (PR 1978), scale 1:24,000.

2. Moyer B. Edwards, Director of Environmental Control, Alabama By-Products, Corporation, letter with attachment to U.S. Environmental Protection Agency, Region IV, Sites Notification, June 9, 1981. Subject: Hazardous Waste Notification (EPA Form 8900-1).

3. Potential Hazardous Waste Site Site Inspection Report (EPA Form 2070-13) for Alabama By-Products Corporation, Tarrant City, Jefferson County, Alabama. Filed by Stephen M. Hornung, Environmental Protection Systems, Inc., March 28, 1985.

4. Dynamac Corporation Field Logbook No. C04119-SIP-C-009 for Alabama By-Products Corporation. Documentation of multiple sites reconnaissance, January 25-26, 1993.

5 U.S. Department of Commerce, Climatic Atlas of the United States (Washington, D.C.: GPO, June 1968) Reprint: 1983, National Oceanic and Atmospheric Administration, excerpt, 4 pages.

6. U.S. Department of Commerce, Rainfall Frequency Atlas of the United States, Technical Paper 40 (Washington, D.C.: GPO, 1961), excerpt 3 pages.

7. Environmental Protection Systems, Inc., RCRA 3012 Site Inspection Report for Alabama By-Products, Inc., presented to Alabama Department of Environmental Management (March 1985).

8. Moyer B. Edwards, Director of Environmental Control, Alabama By-Products Corporation, letter with attachment to EPA Region IV, RCRA Activities, November 17, 1980. Subject: Interim Status for Alabama By-Products.

9. Moyer B. Edwards, Director Environmental Control, Alabama By-Products Corporation, letter to David Roberson, Land Program, Alabama Department of Environmental Management, May 5, 1983. Subject: Withdrawal request for Part A.

10. James H. Scarbrough, Professional Engineer, Chief, Residuals Management Branch, Waste Management Division, Alabama Department of Environmental Management, letter to Moyer B. Edwards, Director of Environmental Control, Alabama By-Products Corporation, November 8, 1985. Subject: Denial of request for withdrawal of Part A.

11. Jack E. Ravan, Regional Administrator, Alabama Department of Environmental Management, letter to Moyer B. Edwards, Manager of Environmental Affairs, Alabama By-Products Corporation, June 17, 1986. Subject: Status change to generator status.

12. Alabama Department of Environmental Management, National Pollutant Discharge Elimination System Permit (No. AL0003417) issued to ABC Coke Division of Drummond Company, Inc., Tarrant City, Alabama, March 20, 1989.

13. Steve O. Jenkins, Chief RCRA Compliance Branch, Land Division, Alabama Department of Environmental Management, letter to Steve W. Morgan, Environmental Engineer, ABC Coke Plant, March 5, 1990. Subject: Warning Letter.

14. W.M. Poling, Manager Engineering, Maintenance and Environmental Control, ABC Coke, letter to Steve O. Jenkins, Chief RCRA Compliance Branch, Land Division, Alabama Department of Environmental Management, March 27, 1990. Subject: Response to warning letter.

15. Alicia A. Finch, RCRA Compliance Branch, Land Division, memorandum to Steve O. Jenkins, Chief RCRA Compliance Branch, Land Division, Alabama Department of Environmental Management, March 21, 1990. Subject: Trip report to ABC Coke Plant.

16. Stephen Cobb, Environmental Scientist, Alabama Department of Environmental Management, telephone conversation with Nilgun Akpinar, Environmental Scientist, Dynamac Corporation, December 23, 1992. Subject: RCRA status of Alabama By-Products Corporation.

17. Ken Feely, Environmental Scientist, RCRA Compliance Section, EPA Region IV, telephone conversation with Doug Meade, Dynamac Corporation, December 28, 1992. Subject: RCRA status of Alabama sites for SIPS.

18. Potential Hazardous Waste Site Preliminary Assessment (EPA Form 2070-12) with attachment for Alabama By-Products Corporation, Tarrant City, Jefferson County, Alabama. Filed by Steven M. Hornung, Environmental Protection Systems Inc., October 4, 1984.

19. T.S.D.F. Inspection of Alabama By-Products Company on June 16, 1987; filed by Ronald F. Ford, Alabama Department of Environmental Management, Compliance/Emergency Response Section, Field Operations Division, September 3, 1987.

20. S.W. Morgan, Environmental Engineer, ABC Coke, letter with attachment to Alicia A. Finch, Hazardous Waste Branch, Land Division, Alabama Department of Environmental Management, December 20, 1989. Subject: Hazardous waste manifests.

21. Ciyde Sherer, memorandum to Bernard E. Cox, Jr., Alabama Department of Environmental Management, June 24, 1985. Subject: Part B Permit Meeting, Alabama By-Product Corporation.

22. Moyer B. Edwards, Director Environmental Control, Alabama By-Products Corporation, letter to Joe Downey, Alabama Department of Environmental Management, Land Division, March 12, 1984. Subject: Decanter tar sludge.

23. Moyer B. Edwards, Director Environmental Control, Alabama By-Products Corporation, letter with attachment to Joe Downey, Alabama Department of Environmental Management, Hazardous Waste Branch, March 19, 1985. Subject: Recycling of decanter tar sludge.

24. Michael Planert and James L. Pritchett, Jr., Geohydrology and Susceptibility of Major Aquifers to Surface Contamination in Alabama; Area 4, Water-Resources Investigations Report 88-4133 (Tuscaloosa, Alabama: U.S. Geological Survey, 1989), excerpt, 21 pages with attachment.

25. Tola B. Moffett and Paul H. Moser, Ground-Water Resources of the Birmingham and Cahaba Valleys, Jefferson County, Alabama, Circular 103 (University, Alabama: Geological Survey of Alabama, 1978), excerpt, 7 pages.

26. Jack T. Kidd, Areal Geology of Jefferson County, Alabama, Atlas 15 (University, Alabama: Geological Survey of Alabama, 1979), excerpt, 6 pages.

27. Jonathan A. Hunter and Paul H. Moser, Ground-Water Availability in Jefferson County, Alabama, To accompany Special Map 224 (Tuscaloosa, Alabama: Geological Survey of Alabama, 1990), excerpt, 6 pages.

28. J.V. Brahana et al., "Carbonate Rocks," in The Geology of North America Vol. O-2, Hydrogeology (Boulder, Colorado: The Geological Survey of America, 1988), excerpt, 13 pages.

29. Darryl Jones, Junior Engineer, City of Birmingham Water Department, telephone conversation with Nilgun Akpinar, Environmental Scientist, Dynamac Corporation, January 8, 1993. Subject: Information on the City of Birmingham Water Department.

30. United States Department of Agriculture, Soil Conservation Service, Soil Survey of Jefferson County, Alabama (August, 1982), excerpt, 5 pages with attachment.

31. Federal Emergency Management Agency, Flood Insurance Rate Map, City of Tarrant City, Alabama, Jefferson County, Panel 4 of 6, January 2, 1981.

32. Federal Emergency Management Agency, Flood Insurance Rate Map, City of Tarrant City, Alabama, Jefferson County, Panel 5 of 6, January 2, 1981.

33. J.L. Pearman et al., Water Resources Data, Alabama Water Year 1990, U.S. Geological Survey Water Data Report AL-90-1 (Tuscaloosa, Alabama: U.S. Geological Survey, 1991), excerpt, 3 pages.

34. Jerry Moss, Biologist, Alabama Department of Conservation & Natural Resources - Game and Fish Division, telephone conversation with Nilgun Akpinar, Environmental Scientist, Dynamac Corporation, September 24, 1993. Subject: Information on fishing in Fivemile Creek in Tarrant City, Alabama.

35. U.S. Fish and Wildlife Service, Endangered and Threatened Species of the Southeastern United States, (Atlanta, Georgia, 1992), excerpt, 6 pages.

36. Lisa Swainger, Secretary, Birmingham Chamber of Commerce, telephone conversation with Nilgun Akpinar, Environmental Scientist, Dynamac Corporation, January 27, 1993. Subject: Size of Alabama By-Products Corporation.

37. U.S. Environmental Protection Agency, Graphical Exposure Modeling System (GEMS) Data Base, compiled from U.S. Bureau of the Census data (1980).

38. Fred Carr, Maintenance Superintendent and Darryl Jones, Junior Engineer, City of Birmingham Water Department, telephone conversation with Mitch Cohen, Staff Engineer, Dynamac Corporation, October 29, 1993. Subject: Areas served by the Birmingham Water Department and use of private wells in the study area.

ALABAMA BY-PRODUCTS CORPORATION

FOUNDRY COKE • COAL • COAL CHEMICALS

GENERAL OFFICES
FIRST NATIONAL-SOUTHERN NATURAL BUILDING
P. O. BOX 10246 BIRMINGHAM, ALABAMA 35202

PHONE (205) 252-5171
TELEX NO. 59-810

MOYER B. EDWARDS
DIRECTOR ENVIRONMENTAL CONTROL

Reference No. 2

June 9, 1981

U. S. Environmental Protection Agency
Region IV
Sites Notification
Atlanta, Georgia 30308

Subject: Hazardous Waste Notification

Dear Sir:

Attached is our completed notification form as required by PL-96-510, Section 103(c).

We trust this submission satisfies the above requirement.

Yours truly,

Moyer B. Edwards
Director Environmental Control

MBE:rl
Attachment

EPA Notification of Hazardous Waste Site

R

United States Environmental Protectic Agency
Washington DC 20460

810609

This initial notification information is required by Section 103(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 and must be mailed by June 9, 1981.

Please type or print in ink. If you need additional space, use separate sheets of paper. Indicate the letter of the item which applies.

ALS000001085

A Person Required to Notify:

Enter the name and address of the person or organization required to notify.

Name: Alabama By-Products Corporation

Street: P. O. Box 10246

City: Birmingham, State: AL Zip Code: 35202

B Site Location:

Enter the common name (if known) and actual location of the site.

ALD 000823179

Name of Site: Tarrant Coke Plant

Street: Alabama Street & Huntsville Avenue

City: Tarrant County: Jefferson State: AL Zip Code: 35217

C Person to Contact:

Enter the name, title (if applicable), and business telephone number of the person to contact regarding information submitted on this form.

Name (Last, First and Title): Edwards, Moyer B., Director Environmental Control

Phone: 1-205-252-5171

D Dates of Waste Handling:

Enter the years that you estimate waste treatment, storage, or disposal began and ended at the site.

From (Year): 1930 To (Year): 1980

E Waste Type: Choose the option you prefer to complete

Option 1: Select general waste types and source categories. If you do not know the general waste types or sources, you are encouraged to describe the site in Item I—Description of Site.

General Type of Waste:
Place an X in the appropriate boxes. The categories listed overlap. Check each applicable category.

1. ☐ Organics
2. ☐ Inorganics
3. ☐ Solvents
4. ☐ Pesticides
5. ☐ Heavy metals
6. ☐ Acids
7. ☐ Bases
8. ☐ PCBs
9. ☐ Mixed Municipal Waste
10. ☐ Unknown
11. ☐ Other (Specify)

_____

_____

_____

Source of Waste:
Place an X in the appropriate boxes.

1. ☐ Mining
2. ☐ Construction
3. ☐ Textiles
4. ☐ Fertilizer
5. ☐ Paper/Printing
6. ☐ Leather Tanning
7. ☐ Iron/Steel Foundry
8. ☐ Chemical, General
9. ☐ Plating/Polishing
10. ☐ Military/Ammunition
11. ☐ Electrical Conductors
12. ☐ Transformers
13. ☐ Utility Companies
14. ☐ Sanitary/Refuse
15. ☐ Photofinish
16. ☐ Lab/Hospital
17. ☐ Unknown
18. ☐ Other (Specify)

_____

_____

_____

Option 2: This option is available to persons familiar with the Resource Conservation and Recovery Act (RCRA) Section 3001 regulations (40 CFR Part 261).

Specific Type of Waste:
EPA has assigned a four-digit number to each hazardous waste listed in the regulations under Section 3001 of RCRA. Enter the appropriate four-digit number in the boxes provided. A copy of the list of hazardous wastes and codes can be obtained by contacting the EPA Region serving the State in which the site is located.

K087		0 0 7 2 5

RECEIVED
EPA/REGION IV
JUN 3 3 32 PM '80
ENFORCEMENT DIVISION

Form Approved
OMB No. 2000-0138

EPA Form 8900-1

F Waste Quantity:

Place an X in the appropriate boxes to indicate the facility types found at the site.

In the "total facility waste amount" space give the estimated combined quantity (volume) of hazardous wastes at the site using cubic feet or gallons.

In the "total facility area" space, give the estimated area size which the facilities occupy using square feet or acres.

Facility Type

1. ☐ Piles
2. ☐ Land Treatment
3. ☒ Landfill
4. ☐ Tanks
5. ☐ Impoundment
6. ☐ Underground Injection
7. ☐ Drums, Above Ground
8. ☐ Drums, Below Ground
9. ☐ Other (Specify) _____

Total Facility Waste Amount

cubic feet UK

gallons

Total Facility Area

square feet UK

acres

G Known, Suspected or Likely Releases to the Environment:

Place an X in the appropriate boxes to indicate any known, suspected, or likely releases of wastes to the environment.

☐ Known ☐ Suspected ☐ Likely ☒ None

Note: Items H and I are optional. Completing these items will assist EPA and State and local governments in locating and assessing hazardous waste sites. Although completing the items is not required, you are encouraged to do so.

H Sketch Map of Site Location: (Optional)

Sketch a map showing streets, highways, routes or other prominent landmarks near the site. Place an X on the map to indicate the site location. Draw an arrow showing the direction north. You may substitute a publishing map showing the site location.

Description of Site: (Optional)

Describe the history and present conditions of the site. Give directions to the site and describe any nearby wells, springs, lakes, or housing. Include such information as how waste was disposed and where the waste came from. Provide any other information or comments which may help describe the site conditions.

J Signature and Title:

The person or authorized representative (such as plant managers, superintendents, trustees or attorneys) of persons required to notify must sign the form and provide a mailing address (if different than address in item A). For other persons providing notification, the signature is optional. Check the boxes which best describe the relationship to the site of the person required to notify. If you are not required to notify check "Other".

Name Moyer B. Edwards, Director Environmental Control

Street P. O. Box 10246

City Birmingham State AL Zip Code 35202

Signature Moyer Edwards Date June 9, 1981

☒ Owner, Present
☐ Owner, Past
☐ Transporter
☐ Operator, Present
☐ Operator, Past
☐ Other

[redacted]

— Reference No. 3 —

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
AL	D000823179

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
ALABAMA BY-PRODUCTS CORPORATION	ALABAMA ST. & HUNTSVILLE RD.

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
TARRANT CITY	AL	35217	JEFFERSON	073	06

09 COORDINATES LATITUDE	LONGITUDE	10 TYPE OF OWNERSHIP (Check one)
33 35 15.—	086 47 00.—	☒ A. PRIVATE ☐ B. FEDERAL ____ ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL ☐ F. OTHER ____ ☐ G. UNKNOWN

III. INSPECTION INFORMATION

01 DATE OF INSPECTION	02 SITE STATUS	03 YEARS OF OPERATION
1 10 85 (MONTH DAY YEAR)	☒ ACTIVE ☐ INACTIVE	1920 (BEGINNING YEAR) ____ (ENDING YEAR) ____ UNKNOWN

04 AGENCY PERFORMING INSPECTION (Check all that apply)

☐ A. EPA ☐ B. EPA CONTRACTOR ____ (Name of firm) ☐ C. MUNICIPAL ☐ D. MUNICIPAL CONTRACTOR ____ (Name of firm)
☐ E. STATE ☒ F. STATE CONTRACTOR EPS (Name of firm) ☐ G. OTHER ____ (Specify)

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO.
STEVEN M. HORNUNG	ENVIRONMENTAL ENGINEER	EPS	(601) 922-8242
09 OTHER INSPECTORS	10 TITLE	11 ORGANIZATION	12 TELEPHONE NO.
THOMAS McALPIN	FIELD TECHNICIAN	EPS	(904) 944-0301
			( )
			( )
			( )
			( )

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO.
MOYER B. EDWARDS	MGR. OF ENVIR. RESOURCES	P.O. BOX 10246 BIRMINGHAM, AL 35202	(205) 250-5429
JAMES D. DUREN, JR.	PLANT MGR.	P.O. BOX 6507 BIRMINGHAM, AL 35217	(205) 841-5583
			( )
			( )
			( )
			( )

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
☒ PERMISSION ☐ WARRANT	8:00 A.M.	RAINY, COLD

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO.
STEPHEN MAURER SCW	ADEM	(205) 271-7728

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE
STEVEN M. HORNUNG		EPS	601/922-8242	3 28 85 (MONTH DAY YEAR)

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
AL	D000823179

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- ☐ A. SOLID
- ☐ B. POWDER, FINES
- ☒ C. SLUDGE
- ☐ D. OTHER (Specify)
- ☐ E. SLURRY
- ☐ F. LIQUID
- ☐ G. GAS

02 WASTE QUANTITY AT SITE
(Measures of waste quantities must be independent)

- TONS: C
- CUBIC YARDS: UNKNOWN
- NO. OF DRUMS:

03 WASTE CHARACTERISTICS (Check all that apply)

- ☒ A. TOXIC
- ☐ B. CORROSIVE
- ☐ C. RADIOACTIVE
- ☐ D. PERSISTENT
- ☐ E. SOLUBLE
- ☐ F. INFECTIOUS
- ☐ G. FLAMMABLE
- ☐ H. IGNITABLE
- ☐ I. HIGHLY VOLATILE
- ☐ J. EXPLOSIVE
- ☐ K. REACTIVE
- ☐ L. INCOMPATIBLE
- ☐ M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS			
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS	UNKNOWN		NUMEROUS ORGANIC CONTAMINANTS
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
OCC	BASE NEUTRAL EXTRACTABLES		DITCH AND POND SLUDGE	12.4 - 357	PPM
OCC	ACID EXTRACTABLES		DITCH AND POND SLUDGE	74 - 3935	PPM
	(SEE LAB RESULTS FOR SPECIFICS)				

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

SITE INSPECTION, JANUARY 10, 1985

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
AL	D000823179

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☒ A. GROUNDWATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) — ☒ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

POTENTIAL FOR GROUNDWATER CONTAMINATION FROM HIGH ORGANIC CONTAMINATION IN POND AND IN DITCH.

01 ☒ B. SURFACE WATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) — ☒ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

DITCH DRAINS TO HOLDING POND. POND DISCHARGES TO FIVEMILE CREEK.

01 ☐ C. CONTAMINATION OF AIR — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

01 ☒ E. DIRECT CONTACT — 02 ☐ OBSERVED (DATE: _____) — ☒ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: WORKERS — 04 NARRATIVE DESCRIPTION

POTENTIAL FOR CONTACT WITH SLUDGE BY WORKERS. DITCH RUNS THROUGH PLANT SITE.

01 ☒ F. CONTAMINATION OF SOIL — 02 ☐ OBSERVED (DATE: 1-10-85) — ☐ POTENTIAL — ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: _____ (Acres) — 04 NARRATIVE DESCRIPTION

SOIL IN DITCH IS CONTAMINATED WITH ORGANICS.

01 ☒ G. DRINKING WATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) — ☒ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

LOW POTENTIAL. NO DRINKING WATER WELLS IN VICINITY OF SITE.

01 ☐ H. WORKER EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
03 WORKERS POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

01 ☐ I. POPULATION EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
AL	0000823179

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☐ J. DAMAGE TO FLORA — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ K. DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION (Include names(s) of species)

01 ☐ L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☒ M. UNSTABLE CONTAINMENT OF WASTES (Spills/Runoff/Standing liquids/Leaking drums) — 02 ☒ OBSERVED (DATE: 1-10-85) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION
WASTE WAS BEING DISCHARGED INTO DITCH WHICH FLOWS TO THE HOLDING POND DURING THE INSPECTION.

01 ☐ N. DAMAGE TO OFFSITE PROPERTY — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

III. TOTAL POPULATION POTENTIALLY AFFECTED: _____

IV. COMMENTS

V. SOURCES OF INFORMATION (Cite specific references, e. g., state files, sample analysis, reports)

SITE INSPECTION, JANUARY 10, 1985

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION
PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
AL	D000823179

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
X A. NPDES	AL0003417	9-26-83	10-31-88	
☐ B. UIC				
☐ C. AIR				
☐ D. RCRA				
☐ E. RCRA INTERIM STATUS				
☐ F. SPCC PLAN				
☐ G. STATE (Specify)				
☒ H. LOCAL (Specify)	4070001			JEFFERSON COUNTY AIR PERMIT
☐ I. OTHER (Specify)				
☐ J. NONE				

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE
☒ A. SURFACE IMPOUNDMENT	UNKNOWN	
☐ B. PILES		
☐ C. DRUMS, ABOVE GROUND		
☐ D. TANK, ABOVE GROUND		
☐ E. TANK, BELOW GROUND		
☐ F. LANDFILL		
☐ G. LANDFARM		
☐ H. OPEN DUMP		
☒ I. OTHER (Specify) DITCH	UNKNOWN	

04 TREATMENT (Check all that apply)

- ☐ A. INCENERATION
- ☐ B. UNDERGROUND INJECTION
- ☐ C. CHEMICAL/PHYSICAL
- ☒ D. BIOLOGICAL
- ☐ E. WASTE OIL PROCESSING
- ☐ F. SOLVENT RECOVERY
- ☐ G. OTHER RECYCLING/RECOVERY
- ☐ H. OTHER _____ (Specify)

05 OTHER

- ☒ A. BUILDINGS ON SITE

06 AREA OF SITE

~50 (Acres)

07 COMMENTS

THE SURFACE IMPOUNDMENTS ARE USED FOR WASTEWATER TREATMENT. THE SLUDGE IN THE EQUALIZATION POND IS VERY HIGH IN TOXIC ORGANICS.

THE DITCH IS FOR SURFACE RUNOFF FROM THE STORAGE YARDS. DURING THE INSPECTION WATER FROM THE PLANT WAS BEING DISCHARGED ALSO DUE TO A PUMP FAILURE. THE DITCH SEDIMENT WAS HIGHLY CONTAMINATED

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)

☐ A. ADEQUATE, SECURE ☐ B. MODERATE ☐ C. INADEQUATE, POOR ☒ D. INSECURE, UNSOUND, DANGEROUS

02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC.

THE DITCH FLOWS TO THE HOLDING POND. WATER FROM THIS POND IS DISCHARGED TO FIVE MILE CREEK. SEDIMENT IN THE DITCH WAS HIGHLY CONTAMINATED.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE. ☐ YES ☒ NO

02 COMMENTS

THE PLANT SITE IS FENCE AND A SECURITY FORCE IS EMPLOYED. ANY WASTE IN FIVE MILE CREEK IS ACCESSIBLE

VI. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis, reports)

SITE INSPECTION, JANUARY 10, 1985

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
AL	D000823179

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (Check as applicable)			02 STATUS			03 DISTANCE TO SITE
	SURFACE	WELL	ENDANGERED	AFFECTED	MONITORED	
COMMUNITY	A. ☒	B. ☐	A. ☐	B. ☐	C. ☐	A. 710 (mi)
NON-COMMUNITY	C. ☐	D. ☒	D. ☐	E. ☐	F. ☐	B. UNKNOWN (mi)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one)

☐ A. ONLY SOURCE FOR DRINKING ☒ B. DRINKING (Other sources available) COMMERCIAL, INDUSTRIAL, IRRIGATION (No other water sources available) ☐ C. COMMERCIAL, INDUSTRIAL, IRRIGATION (Limited other sources available) ☐ D. NOT USED, UNUSEABLE

02 POPULATION SERVED BY GROUND WATER < 100

03 DISTANCE TO NEAREST DRINKING WATER WELL ~3 (mi)

04 DEPTH TO GROUNDWATER	05 DIRECTION OF GROUNDWATER FLOW	06 DEPTH TO AQUIFER OF CONCERN	07 POTENTIAL YIELD OF AQUIFER	08 SOLE SOURCE AQUIFER
6-30 (ft)	SOUTHWEST	6-30 (ft)	4×10^5 (gpd)	☐ YES ☒ NO

09 DESCRIPTION OF WELLS (Including useage, depth, and location relative to population and buildings)

INDIVIDUAL WELLS IN AREA NOT CLOSE TO FACILITY. UTILIZE DIFFERENT FORMATION THEN THAT WHICH OUTCROPS UNDER SITE. THERE ARE SOME WELLS WITHIN 2 MILES.

10 RECHARGE AREA		11 DISCHARGE AREA	
☐ YES ☒ NO	COMMENTS	☒ YES ☐ NO	COMMENTS NUMEROUS SPRINGS ARE LOCATED AROUND FACILITY

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

☐ A. RESERVOIR, RECREATION DRINKING WATER SOURCE ☐ B. IRRIGATION, ECONOMICALLY IMPORTANT RESOURCES ☒ C. COMMERCIAL, INDUSTRIAL ☐ D. NOT CURRENTLY USED

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME:	AFFECTED	DISTANCE TO SITE
FIVE MILE CREEK	☐	0 (mi)
	☐	(mi)
	☐	(mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE	TWO (2) MILES OF SITE	THREE (3) MILES OF SITE
A. ____ NO. OF PERSONS	B. ____ NO. OF PERSONS	C. ____ NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION: 300 FT (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE: ____

04 DISTANCE TO NEAREST OFF-SITE BUILDING: 300 FT (mi)

05 POPULATION WITHIN VICINITY OF SITE (Provide narrative description of nature of population within vicinity of site, e.g., rural, village, densely populated urban area)

THE POPULATION NEAR THE PLANT IS CONCENTRATED TO THE EAST AND SOUTH. THESE AREAS CONSIST OF BUSINESS / RESIDENTIAL SECTIONS OF TARRANT CITY AND ITS ADJOINING COMMUNITIES. A SMALL RESIDENTIAL SECTION CONSISTING OF APPROXIMATELY 60 HOMES IS AT THE NORTHEAST EDGE OF THE PROPERTY.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
AL	D000823179

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one)

☐ A. $10^{-6} - 10^{-8}$ cm/sec ☒ B. $10^{-4} - 10^{-6}$ cm/sec ☐ C. $10^{-4} - 10^{-3}$ cm/sec ☐ D. GREATER THAN 10^{-3} cm/sec

02 PERMEABILITY OF BEDROCK (Check one)

☒ A. IMPERMEABLE (Less than 10^{-6} cm/sec) ☐ B. RELATIVELY IMPERMEABLE ($10^{-4} - 10^{-6}$ cm/sec) ☐ C. RELATIVELY PERMEABLE ($10^{-2} - 10^{-4}$ cm/sec) ☐ D. VERY PERMEABLE (Greater than 10^{-2} cm/sec)

03 DEPTH TO BEDROCK	04 DEPTH OF CONTAMINATED SOIL ZONE	05 SOIL pH	
5-20 (ft)	UNKNOWN (ft)		

06 NET PRECIPITATION	07 ONE YEAR 24 HOUR RAINFALL	08 SLOPE		
		SITE SLOPE	DIRECTION OF SITE SLOPE	TERRAIN AVERAGE SLOPE
53.2 (in)	3.5 (in)	1-2 %	NORTH	1-20 %

09 FLOOD POTENTIAL
SITE IS IN POSSIBLY 100 YEAR FLOODPLAIN

10
☐ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS (5 acre minimum)

ESTUARINE: A. _____ (mi)

OTHER: B. _____ (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)

_____ (mi)

ENDANGERED SPECIES: _____

13 LAND USE IN VICINITY

DISTANCE TO:

COMMERCIAL/INDUSTRIAL	RESIDENTIAL AREAS; NATIONAL/STATE PARKS, FORESTS, OR WILDLIFE RESERVES	AGRICULTURAL LANDS	
		PRIME AG LAND	AG LAND
A. 0.1 (mi)	B. 0.1 (mi)	C. _____ (mi)	D. _____ (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

THE SITE LIES IN THE OPOSSUM VALLEY AND IS SOUTH OF SAND MOUNTAIN. THE SITE AND THE SURROUNDING AREA IS RELATIVELY FLAT. TO THE EAST OF TARRANT CITY THE TERRAIN BECOMES RATHER HILLY. FIVE MILE CREEK IS LOCATED ALONG THE PLANTS NORTHERN BOUNDARY.

VII. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

- SITE INSPECTION, JANUARY 10, 1985
- ENVIRONMENTAL DATA INVENTORY, STATE OF ALABAMA, MOBILE DISTRICT, U.S. ARMY CORPS OF ENGINEERS, 1981.
- GROUNDWATER RESOURCES OF THE BIRMINGHAM AND CAHABA VALLEYS OF JEFFERSON COUNTY, ALABAMA, CIRCULAR 103, GEOLOGICAL SURVEY OF ALABAMA, 1978.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 6 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
AL	D000823179

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER			
SURFACE WATER			
WASTE	2	EPS - JACKSON, MISSISSIPPI	3-85
AIR			
RUNOFF			
SPILL			
SOIL	3	EPS - JACKSON, MISSISSIPPI	3-85
VEGETATION			
OTHER			

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS

IV. PHOTOGRAPHS AND MAPS

01 TYPE ☒ GROUND ☐ AERIAL

02 IN CUSTODY OF ATTACHED
(Name of organization or individual)

03 MAPS ☒ YES ☐ NO

04 LOCATION OF MAPS ATTACHED

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

SITE INSPECTION, JANUARY 10, 1985

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 7 - OWNER INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
AL	D000823179

II. CURRENT OWNER(S) / PARENT COMPANY (if applicable)

01 NAME	02 D+B NUMBER	08 NAME	09 D+B NUMBER
ALABAMA BY-PRODUCTS CORP.			

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE
P.O. BOX 10246			

05 CITY	06 STATE	07 ZIP CODE	12 CITY	13 STATE	14 ZIP CODE
BIRMINGHAM	AL	35202			

01 NAME	02 D+B NUMBER	08 NAME	09 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	12 CITY	13 STATE	14 ZIP CODE

01 NAME	02 D+B NUMBER	08 NAME	09 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	12 CITY	13 STATE	14 ZIP CODE

01 NAME	02 D+B NUMBER	08 NAME	09 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	12 CITY	13 STATE	14 ZIP CODE

III. PREVIOUS OWNER(S) (List most recent first) / IV. REALTY OWNER(S) (If applicable; list most recent first)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

STATE FILES

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 8 - OPERATOR INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
AL	D000823179

II. CURRENT OPERATOR (Provide if different from owner)

01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER

OPERATOR'S PARENT COMPANY (If applicable)

10 NAME	11 D+B NUMBER

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

III. PREVIOUS OPERATOR(S) (List most recent first; provide only if different from owner)

01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD

PREVIOUS OPERATORS' PARENT COMPANIES (If applicable)

10 NAME	11 D+B NUMBER

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD

10 NAME	11 D+B NUMBER

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD

10 NAME	11 D+B NUMBER

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

IV. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
AL	D000823179

II. ON-SITE GENERATOR

01 NAME	02 D+B NUMBER
ALABAMA BY-PRODUCTS	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
P.O. Box 10246	

05 CITY	06 STATE	07 ZIP CODE
BIRMINGHAM	AL	35217

III. OFF-SITE GENERATOR(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

IV. TRANSPORTER(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

STATE FILES

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
AL	D000823179

II. PAST RESPONSE ACTIVITIES

01 ☐ A. WATER SUPPLY CLOSED 04 DESCRIPTION	02 DATE	03 AGENCY
01 ☐ B. TEMPORARY WATER SUPPLY PROVIDED 04 DESCRIPTION	02 DATE	03 AGENCY
01 ☐ C. PERMANENT WATER SUPPLY PROVIDED 04 DESCRIPTION	02 DATE	03 AGENCY
01 ☐ D. SPILLED MATERIAL REMOVED 04 DESCRIPTION	02 DATE	03 AGENCY
01 ☐ E. CONTAMINATED SOIL REMOVED 04 DESCRIPTION	02 DATE	03 AGENCY
01 ☐ F. WASTE REPACKAGED 04 DESCRIPTION	02 DATE	03 AGENCY
01 ☐ G. WASTE DISPOSED ELSEWHERE 04 DESCRIPTION	02 DATE	03 AGENCY
01 ☐ H. ON SITE BURIAL 04 DESCRIPTION	02 DATE	03 AGENCY
01 ☐ I. IN SITU CHEMICAL TREATMENT 04 DESCRIPTION	02 DATE	03 AGENCY
01 ☐ J. IN SITU BIOLOGICAL TREATMENT 04 DESCRIPTION	02 DATE	03 AGENCY
01 ☐ K. IN SITU PHYSICAL TREATMENT 04 DESCRIPTION	02 DATE	03 AGENCY
01 ☐ L. ENCAPSULATION 04 DESCRIPTION	02 DATE	03 AGENCY
01 ☐ M. EMERGENCY WASTE TREATMENT 04 DESCRIPTION	02 DATE	03 AGENCY
01 ☐ N. CUTOFF WALLS 04 DESCRIPTION	02 DATE	03 AGENCY
01 ☐ O. EMERGENCY DIKING/SURFACE WATER DIVERSION 04 DESCRIPTION	02 DATE	03 AGENCY
01 ☐ P. CUTOFF TRENCHES/SUMP 04 DESCRIPTION	02 DATE	03 AGENCY
01 ☐ Q. SUBSURFACE CUTOFF WALL 04 DESCRIPTION	02 DATE	03 AGENCY

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
AL	D000823179

II PAST RESPONSE ACTIVITIES *(Continued)*

01 ☐ R. BARRIER WALLS CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ S. CAPPING/COVERING — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ T. BULK TANKAGE REPAIRED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ U. GROUT CURTAIN CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ V. BOTTOM SEALED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ W. GAS CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ X. FIRE CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ Y. LEACHATE TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ Z. AREA EVACUATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ 1. ACCESS TO SITE RESTRICTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ 2. POPULATION RELOCATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ 3. OTHER REMEDIAL ACTIVITIES — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

III. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 11 - ENFORCEMENT INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
AL	D000823179

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION [ ] YES [ ] NO

02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY/ENFORCEMENT ACTION

III. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

DYNAMAC
CORPORATION
Environmental Services

WORK ASSIGNMENT NO. C04119
MULTIPLE SITE RECON-ALABAMA
ST. CLAIR COUNTY, ALABAMA
DOCUMENT CONTROL NO. C04119-SIP-LC-009

Peachtree Center Tower, 230 Peachtree Street, N.W., Suite 500, Atlanta, GA 30303

Reference No. 4

January 26, 1993

0845 We left motel and headed for Tarrant City, where ABC Coke is located.

1000 Arrive at ABC Coke facility for an off-site reconnaissance. We noted that the facility was still in operation. It was located in an area that is mostly commercialized. However, on the northeast side of the facility there were approximately 45 residences and a church about 1/8 of a mile away, Damascus Baptist Church. The nearest resident was ~200 feet away, living to the northeast of the facility so that the facility's fence was in the back yard of the residence. The east side of plant was commercial and lightly industrial. To the northwest and southwest of the plant there were quarries. The quarry to the southwest belonged to: Southern Ready Mix, Inc and was called Tarrant Quarry. There was a ditch on the NE side of the facility. The following is a list of photos taken around the facility.

1/26/93

Photo 1: View of east side of plant facing southwest, showing railroad tracks

Photo 2: Photo of nearest residence to site, located north-northwest of plant (on Mc. Donald Street).

Photo 3: East view of plant facing northwest, with a view of automobile junkyard.

Photo 4 Entrance to ABC Coke facing North, at south portion of plant

Photo 5: View of southwest portion of facility facing northeast with Tarrant Quarry in photo.

1040 We leave ABC Coke in Tarrant City and head for Copper Springs Timber Site in Odenville, AL.

1143 Arrive in Odenville, AL.

1151 Arrive at Copper Springs Timber Co. or Copper Springs Lumber Co. We drove through roads that were not paved and went thru very rural, undeveloped areas. This was the only access to the site. We drove up to a gate that was unmarked, at the end of a dirt road which had an arrow stating Copper Springs Lumber Co. We could see what was assumed to be a gatekeepers home and two dogs. The gate was locked and it was impossible to see any further into the property because the dirt road that led more into the

Reference No. 5

CLIMATIC ATLAS OF THE UNITED STATES

onmental Science Services Administration . Environmenta

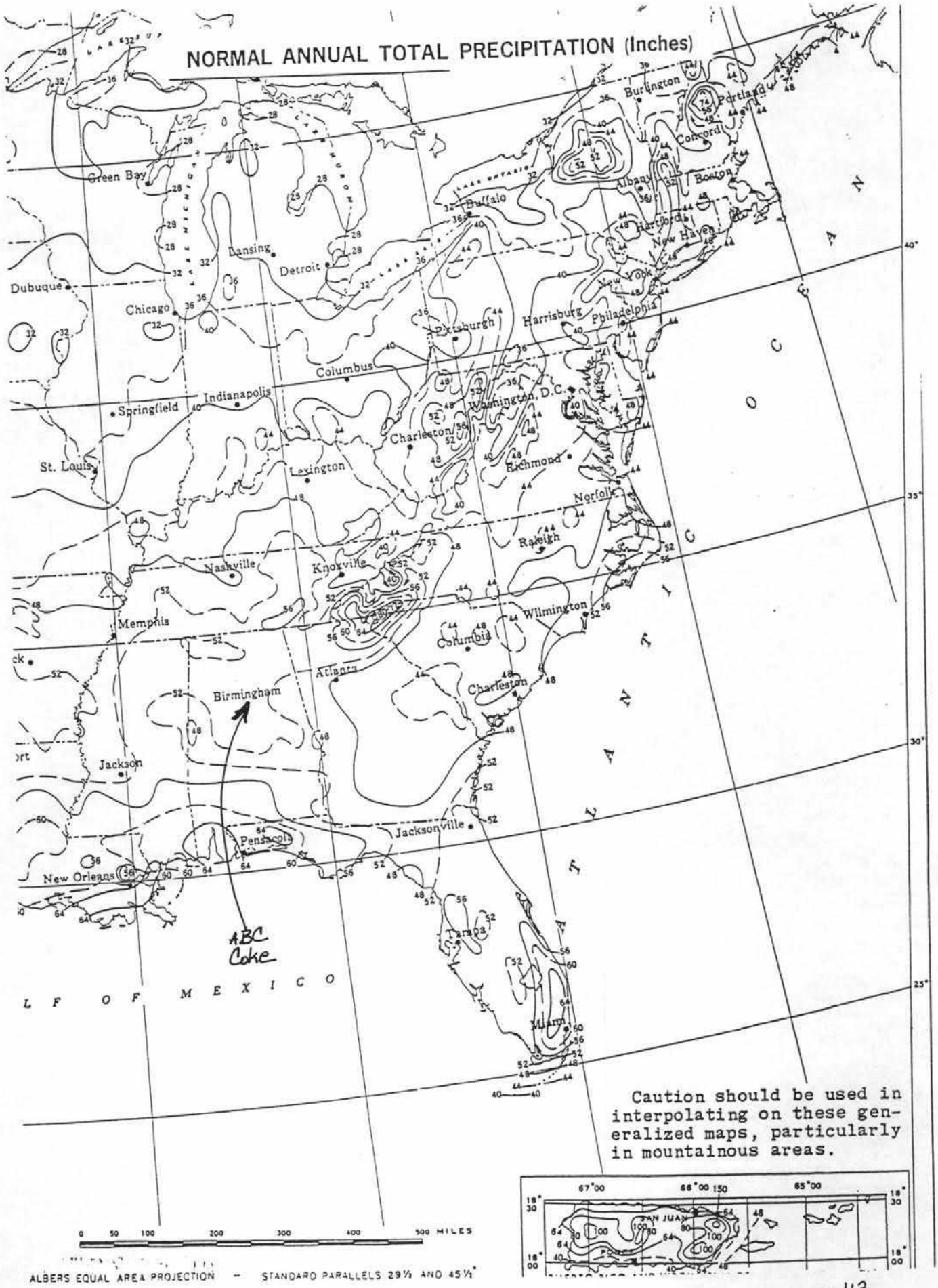
U.S. DEPARTMENT OF COMMERCE
C. R. Smith, Secretary

ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
Robert M. White, Administrator

ENVIRONMENTAL DATA SERVICE
Woodrow C. Jacobs, Director

JUNE 1968

REPRINTED BY THE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
1983


NORMAL ANNUAL TOTAL PRECIPITATION (Inches)
Green Bay
Lansing
Detroit
Dubuque
Chicago
Buffalo
Burlington
Portland
Concord
Albany
Boston
Hartford
New Haven
New York
Philadelphia
Harrisburg
Pittsburgh
Columbus
Springfield
Indianapolis
St. Louis
Charleston
Washington, D.C.
Richmond
Lexington
Norfolk
Raleigh
Nashville
Knoxville
Memphis
Wilmington
Columbia
Atlanta
Charleston
Birmingham
Jackson
Jacksonville
Pensacola
New Orleans
Tampa
Miami
ATLANTIC OCEAN
GULF OF MEXICO
40°
35°
30°
25°
ABC Coke
Caution should be used in interpolating on these generalized maps, particularly in mountainous areas.
0 50 100 200 300 400 500 MILES
ALBERS EQUAL AREA PROJECTION — STANDARD PARALLELS 29½ AND 45½°
SAN JUAN

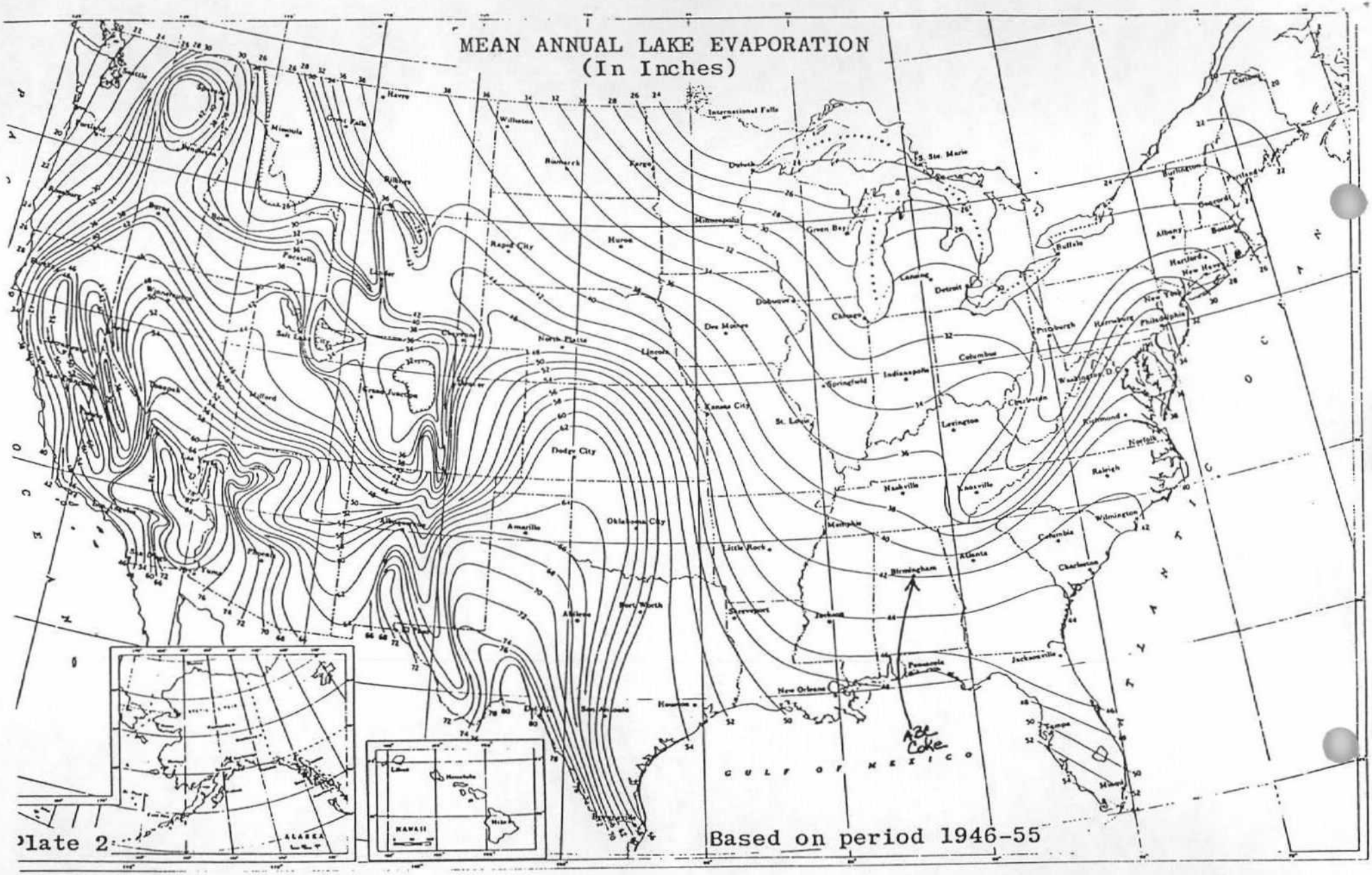

MEAN ANNUAL LAKE EVAPORATION
(In Inches)
Based on period 1946-55
GULF OF MEXICO
ALASKA
HAWAII
Abt Coke

Plate 2

U.S. DEPARTMENT OF COMMERCE
LUTHER H. HODGES, Secretary

WEATHER BUREAU
F. W. REICHELDERFER, Chief

TECHNICAL PAPER NO. 40

RAINFALL FREQUENCY ATLAS OF THE UNITED STATES

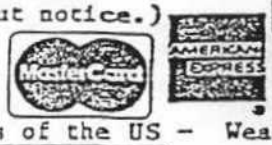
for Durations from 30 Minutes to 24 Hours and Return Periods from 1 to 100 Years

Prepared by
DAVID M. HERSHFIELD
Cooperative Studies Section, Hydrologic Services Division
for
Engineering Division, Soil Conservation Service
U.S. Department of Agriculture

PRICE LIST: RAINFALL FREQUENCY ATLASES — October 1985

The atlases described below may be ordered on one reel of 35mm microfilm at $12.50, or as individual paper pages at $2 per page, $4 service and handling charge per order. (Prices subject to change without notice.) Call to confirm current price.

National Climatic Data Center
Federal Building
Asheville, NC 28801-2696
704 CLI-MATE or 704-259-0682
Telex 6502643731



TP-40: Rainfall Frequency Atlas of the US - Weather Bureau Technical Paper No. 40 (Washington, DC: GPO, 1961) 14x21 ins, paper cover, 61 pages. (Superseded in part by two publications listed below.)

Presents 49 US rainfall frequency maps for selected durations from 30 minutes to 24 hours and return periods from 1 to 100 years. OUT-OF-PRINT, but a 8 1/2x14 in. reduced photocopy priced at $15 is available from the NCDC address above. Make payment to "Commerce-NOAA-NCDC".

HYDRO-35: Five- to 60-Minute Precipitation Frequency for the Eastern and Central US - NOAA Technical Memorandum NWS HYDRO-35 (Silver Spring, MD: NWS, 1977) 8 1/2x11 ins, cardstock cover, 36 pages. (Supersedes TP-40 above for the eastern 2/3 of the US for durations of 1 hr. and less).

Presents 6 US rainfall frequency maps for durations of 5, 15 and 60 minutes at return periods of 2 and 100 years. Equations are given to derive 10- and 30-min values between 2 and 100 years.

Order from: National Technical Info. Svc.
5285 Port Royal Rd.
Springfield, VA 22161
Order Desk Phone: 703-487-4650

Order No : PB 272-112
Prices: Paper $8.50
Microfiche $4.50

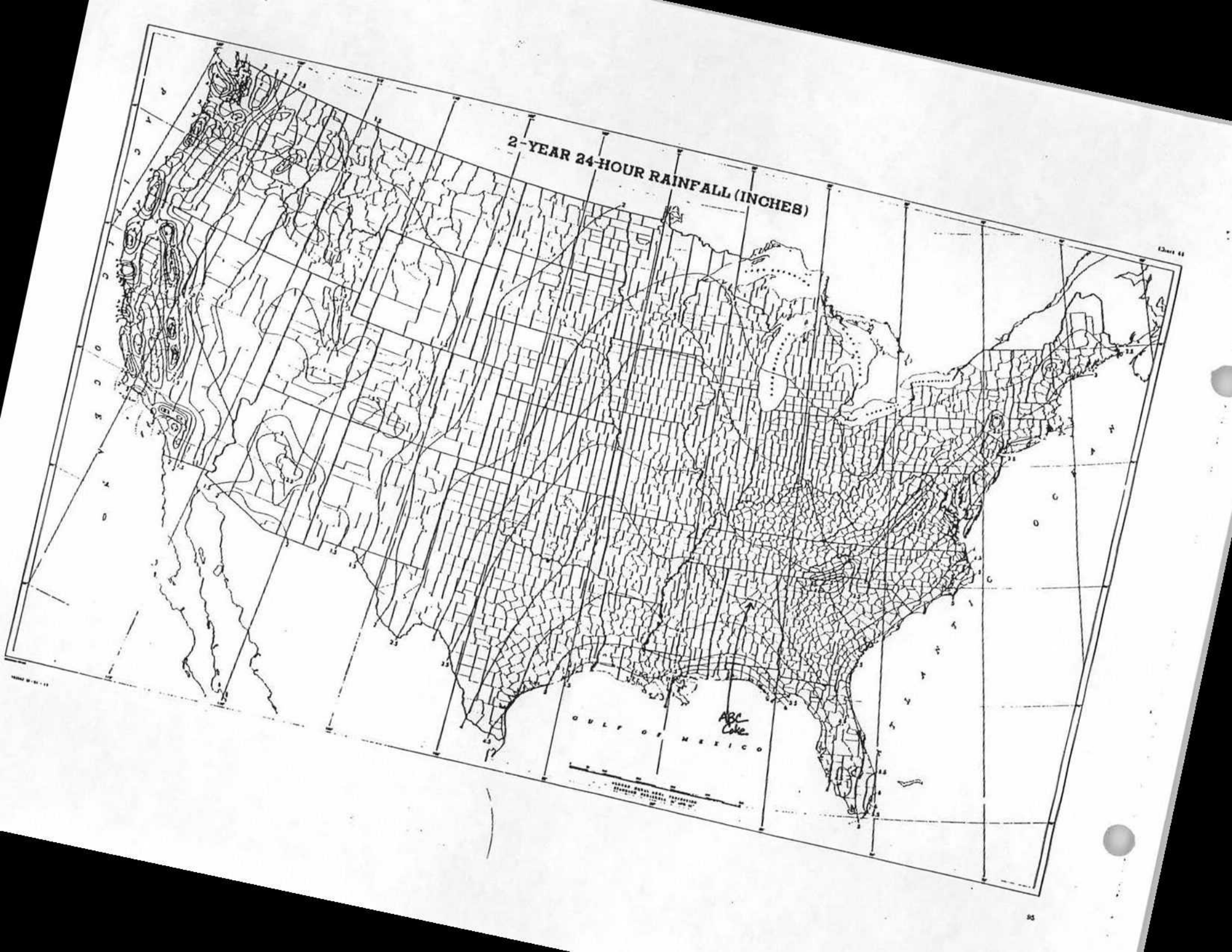
NOAA Atlas 2: Precipitation Frequency Atlas of the Western US (Washington, DC: GPO, 1973) 16x22 ins, cardstock cover, 11 Vols (Supersedes TP-40 above for the 11 western states) OUT OF PRINT.

This atlas contains maps for the 6- and 24-hour durations for return periods of 2, 5, 10, 25, 50, and 100 years. All maps are prepared on the same 1:2,000,000 scale.

Vol.	State	Pages	Photocopy Price
I	Montana	34	$ 68.00
II	Wyoming	34	$ 68.00
III	Colorado	47	$ 94.00
IV	New Mexico	34	$ 68.00
V	Idaho	35	$ 70.00
VI	Utah	46	$ 92.00
VII	Nevada	35	$ 70.00
VIII	Arizona	33	$ 66.00
IX	Washington	35	$ 70.00
X	Oregon	35	$ 70.00
XI	California	48	$ 96.00

(Note: Topographic contours and city names not always legible on microprints of NOAA Atlas 2. Blank, numbered pages are not reproduced, resulting in apparent missing pages, but no data pages are missing.)

$4 SERVICE AND HANDLING CHARGE PER ORDER.


2-YEAR 24-HOUR RAINFALL (INCHES)
GULF OF MEXICO
ABC
Coke

Reference No. 7

RCRA 3012 SITE INSPECTION REPORT

FOR

ALABAMA BY-PRODUCTS, INC.
ALD000823179
SITE INSPECTION
JANUARY 10, 1985

Presented to:

Alabama Department of Environmental Management
Montgomery, Alabama

Presented by:

Environmental Protection Systems, Inc.
Jackson, Mississippi
Pensacola, Florida
Mobile, Alabama

Project No. 1.84.174.01
March, 1985

TABLE OF CONTENTS

1.0 EXECUTIVE SUMMARY

Alabama By-Products has operated at this site since 1920. The site has been used to produce coke and coal chemicals since its construction. During the first thirty years of operation, coal tar sludge was stored in a pit or pile near the back of the property. This material was removed in about 1950 and since that time has been charged into the furnace with the coal. Therefore, they are not currently generating a hazardous waste.

The facility is also regulated under an NPDES permit. Phenolic discharges to surface waters are monitored through this permit. The treatment system used at this facility includes two surface impoundments and two concrete activated sludge-clarifier units. The impoundments are lined with bentonite and clay. A drainage ditch is present on this site to control runoff from the coal/coke storage areas. This ditch empties into a holding pond site. The RCRA 3012 site investigation has indicated high concentrations of both acid extractable and base neutral priority pollutants in the surface runoff ditch and the equalization pond. Oily tar-like material was observed in both of these areas. Organic contamination can be summarized as follows:

Organic Screen	Equalization Pond	Runoff Ditch
Base neutrals, total, ppm	925	2,831
Acid extractables, total, ppm	1,541	6,283

The organic contaminants found in this sampling were mainly polyaromatic hydrocarbons (PAH's) and phenolics. Concentrations of 4,6 dinitro-o-cresol were found in excess of 1,000 ppm. This compound is reportedly highly

toxic and is listed both in the TSCA inventory and under RCRA listing P047. Based on this information, further work is recommended at this site. The extent of contamination, potential worker exposure, and potential contamination of the groundwater are undetermined at this time.

2.0 BACKGROUND

2.1 Location

Alabama By-Products (ABC) is located at Alabama St. & Huntsville Road in Tarrant City, Alabama; zip code 35020, Jefferson County, latitude 33°35'15", longitude 086°47'00'. State and local location maps are presented as Exhibit 2.1.

2.2 Site Layout

The plant site is west of Tarrant City and lies along the Louisville & Nashville Railroad. The site is bordered by the L & N Railroad and other industrial complexes on the east and south, by Five Mile Creek on the north and the sewage disposal plant and a quarry on the west. The plant site basically consists of the coking operation and numerous rail spurs extending out to the coal and coke storage yards on the western side. The wastewater treatment system is located at the north of the property and consists of an equalization pond, 2 concrete activated sludge-clarifier units and a post aeration pond. The site also has a holding pond that is used to contain plant runoff. Surface runoff is generally to the north.

2.3 Ownership History

Alabama By-Products has owned and operated this plant since 1920 when it was built.

2.4 Site Use History

The site has been used to produce coke and coal chemicals since its construction. During the early years of operation, estimated prior to

1950, the coal tar sludge produced was stored in a pile/pit near the back of the property. This area was cleaned up in 1950 and since that time the sludge produced is charged into the furnace with the coal. Coal is currently being stored in this area.

2.5 Permit and Regulatory History

A Part A application was filed in 1980 to cover the plant's wastewater treatment ponds. It was determined that a permit was not needed and interim status was withdrawn. A CERCLA notification was also filed in 1980 for the possible landfilling of tar sludge. If this was done or where is not known by Alabama By-Products.

The plant also has an NPDES permit for wastewater discharge to Five Mile Creek and a Jefferson County Health Department Air Permit.

2.6 Remedial Actions to Date

There are no known remedial actions to date other than the removal of the pile of tar sludge that was at the back of the property. This material was charged into the furnace with the coal. This is the current practice also. No sampling has been done to determine that all materials were removed.

2.7 Summary Trip Report

Environmental Protection Systems, Inc. (EPS), conducted a RCRA 3012 Site Inspection of Alabama By-Products in Tarrant City, Alabama at 8:00 a.m. January 10, 1985. The EPS chief inspector was Mr. Steven M. Hornung. He was assisted by Mr. Thomas McAlpin. The sampling team met Mr. Moyer B. Edwards and James D. Duren of Alabama By-Products.

The sampling team arrived during a heavy rainstorm and an initial interview was conducted in the plant office. At the end of the interview it was decided to conduct a visual inspection of the site from vehicles while waiting for the weather conditions to ease. The rain did let up during the visual inspection and it was decided to initiate sampling. Rain was encountered periodically during the inspection. The sampling team was escorted by the ABC officials during the inspection and samples were split.

Mr. Duren indicated an area near the bank of Five Mile Creek, northeast of the treatment facility that was used for the storage of the tar sludges. He estimated this practice stopped around 1950. The area is now in the area of coke storage and no sign of residual sludge was present. Coke was stored in this area at the time of the inspection.

It was decided to sample the ditch that collects runoff from the area.

An upstream ditch was sampled to determine a background level. The sample was taken in the ditch as it runs parallel to the rail spurs and before it enters a conduit. The sample was a black tar-like material.

The conduit extends approximately 150 feet and then opens to a ditch again. This lower reach of ditch collects runoff from the former tar storage area. A sediment sample was obtained from the ditch before it goes under a roadway and flows to the holding pond. The sample was basically soil with some coke/coal fines.

A short break was taken to get out of the rain and to warm up from the cold weather conditions. The sampling team and the ABC officials returned to the plant office.

At the continuation samples were taken from Five Mile Creek in an effort to determine the effect ABC's discharge may be having on the stream. ABC has constructed a dam across the creek. The water flows over the top. The plant discharge pipe is located on the downstream side of the dam. Access to the creek above the plant was not possible during the inspection. A drainage ditch along the plant flows into the creek above the dam and above ABC's pump house, which is used to obtain process water. Access to the creek above this ditch was not possible either. A sample was therefore taken directly above the dam where there was an accumulation of sediment. At the time of the inspection there was a slight oil sheen on the water.

The sampling team next attempted to obtain a downstream sediment sample. The creek bottom below the dam was slab and broken rock. Sediment was not present. The creek was followed to below the bridge which crosses it from ABC's property. A sediment sample was obtained below the bridge along the south bank. The sample was mainly sand with some silt.

A final sample was taken from the equalization basin. The sludge was a very thick, black oily looking material. The basin has a clay and

bentonite liner as does the post-aeration pond. Both ponds are along the creek but appeared to be out of the floodplain due to the depth of the creek banks along the plant site.

Pictures were taken during the inspection. The consent was given with the understanding that ABC could receive a copy of the prints.

3.0 ENVIRONMENTAL SETTING

3.1 Topography

The Alabama By-Products coke plant is located in the Birmingham-Big Canoe Valley District of the Alabama Valley and Ridge Province. Relief is characterized by a series of broad, flat valleys and low, narrow ridges. Total relief can be up to 400 feet from valley floor to ridgetop, but is normally less. The site itself lies in the Opossum Valley area, south of Sand Mountain. The immediate area around the plant is relatively flat in the valley, however, to the east of Tarrant City the terrain becomes rather hilly.

3.2 Surface Waters

Runoff from the site and the surrounding area drains to Five Mile Creek which is located north of the plant site. The creek is used heavily for discharging of waters by neighboring industries. Alabama By-Products has also constructed a dam to pool the water for a process water inlet. On the day of the inspection a light sheen of oil was observed above the dam.

3.3 Geology and Soils

The Alabama By-Products plant lies in the Opossum Valley southeast of the Opossum Valley Fault. The site is in the outcrop area of the Conasauga Formation, which consists of thin to medium-bedded limestone with thin partings of shale. Thick-bedded high-calcium limestone occurs locally. The beds are folded and fractured. The thickness of the Conasauga formation is estimated to be 1,100 to 1,900 feet.

The overlying soil is a clayey or silty-clay soil of the Colbert-Conasauga-Firestone soil series. The soil ranges in thickness from 5 to 20 feet and has a low permeability. Surface drainage in areas of the Conasauga Formation tends to be poor and during periods of heavy rains, the soil usually becomes saturated and swampy conditions are common.

3.4 Groundwater

The Conasauga Formation and the Ketone Dolomite, which also outcrops in the nearby area, are both considered good aquifers. The water table in the areas underlain by the Conasauga formation is typically 6 to 30 feet below ground surface. Some flowing springs exist and have been utilized for industrial and residential use.

3.5 Climate and Meteorology

General Description: Humid, subtropical, mild winters, hot summers, precipitation during all months. Snowfall seldom; no average monthly temperatures below freezing.

Precipitation: Mean annual precipitation 53.2 inches; annual free water surface evaporation 34.5 inches; mean annual net precipitation 18.7 inches; one year 24-hour rainfall is 3.5 inches. Precipitation is highest from December to June; evaporation is highest from July to November.

3.6 Land Use

The land bordering the facility for the most part is industrial. There is a small residential area to the northeast consisting of approximately 60 homes. A sewage disposal plant is west of the property and a quarry is

located southwest and another north of the plant. There is also some undeveloped land north of the site. East and south of the site within a quarter mile is the town of Tarrant City and its adjoining communities.

3.7 Population Distribution

Population near Alabama By-Products is concentrated to the east and south of the plant. These areas consist of business/residential sections of Tarrant City and its adjoining communities. Adjacent to the property on the northeast edge of the property is a small residential section consisting of approximately 60 homes. Population is limited within a mile of the plant to the north and west.

3.8 Water Supply

The drinking water in the Tarrant City area is purchased from the City of Birmingham. The primary water supply is from Lake Purdy on the Cahaba River with supplemental water from the industrial water supply which is the Inland Reservoir on the Blackburn Fork, a tributary of Locust Fork. Process water for Alabama By-Products is taken from Five Mile Creek.

3.9 Critical Environment/Endangered and Threatened Species

Species Common Name	Range	Status
Indiana Bat	Central Alabama	Endangered (Fed)
Gray Bat	Eastern 2/3 Alabama	Endangered (Fed)
Bald Eagle	Statewide	Endangered (Fed)
Golden Eagle	Statewide	Endangered (AL)
Red-cockaded Woodpecker	South of Tennessee River	Endangered (Fed)
Peregrine Falcon	Statewide	Endangered (Fed)
Osprey	Statewide	Endangered (AL)
Flattened Musk Turtle	Streams of Black Warrior River System	Threatened (AL)

(Reference: Environmental Data Inventory, State of Alabama, U.S. Army Corps of Engineers, Mobile District, 1981)

4.0 WASTE TYPES AND QUANTITIES

4.1 Waste Quantities

It is unknown at this time how much decanter tar sludge is produced at this facility. This material, although a listed hazardous waste, is placed in their furnaces and used for its heat value in the coking process. This facility also operates under an NPDES permit. The plant's treatment system includes several ponds on the facility property. Sampling in this RCRA site investigation included sampling of the equalization basin, which is part of their NPDES system. The sludge in this basin was found to contain organic contamination. The dimensions of the basin are estimated to be 30 x 40 feet and the estimated depth of the sludge is approximately 0.5 feet. A runoff ditch on the property was determined to contain organic contamination as well. The full extent of environmental contamination is unknown at this time.

4.2 Waste Disposal Methods and Locations

For a period, from 1920 to approximately 1950, decanter tar sludge was piled on the property. In 1950 this material was removed and recycled into furnaces on the plant site. At the present time, it is customary practice for the facility to use the sludge in this manner. Wastewater is handled through an NPDES permit. The NPDES treatment system includes earthen basins, which aerate the waste material, as well as settle solids.

4.3. Waste Types

This facility produces K087-decanter tank tar sludge, which is typical from coking operations. This material is a listed hazardous waste for phenol

and naphthalene. In addition, analysis of environmental samples indicated the presence of varying phenols, including nitro- and chlorophenols, anthracene, pyrene, naphthalene, fluorene, and fluoranthene compounds. Specific quantities and compounds are shown in Exhibit 5.1.

5.0 LABORATORY DATA

5.1 Summary

The sampling stations involved in this investigation are described as follows:

Sample Number	Matrix	Description
ABC-SD1-BG	Sediment	Background sample of surface runoff ditch near the treatment plant.
ABC-SD2-DI	Sediment	Ditch sediment taken upstream of the holding pond and road, which may have received runoff from the former disposal area.
ABC-SD3-BG	Sediment	Sediment sample from Five Mile Creek above the dam and NPDES outfalls.
ABC-SD4-CR	Sediment	Sediment sample taken downstream of dam and NPDES outfall (approximately 500-600 feet)
ABC-SD5-PD	Sediment	Composite of sludge from the equalization basin.

Analytical results and quality control information are presented in Exhibit 5.1. To summarize this information, trace organics were seen in all stations. The smallest concentrations of organic constituents were seen in Five Mile Creek. A small amount (3.29 ppm) of nitrophenol was seen in the sediments upstream, and phenanthrene and dinitrocresol were seen downstream in the Five Mile Creek. PAH's and phenolics were seen both in the runoff ditch and the equalization pond sediments. The following compounds were seen in access of 1,000 ppm to approximately 4,000 ppm: 2-chlorophenol, 4,6-dinitro-o-cresol, and 2,4-dichlorophenol.

5.2 Quality Assurance Review

All sample collection, sample preservation and chain-of-custody procedures used during this investigation were in accordance with the standard operating procedures as specified in the Quality Control/Quality Assurance Plan for the Analytical and Environmental Division of Environmental Protection Systems, Inc., revised August 31, 1984. All laboratory analyses and quality assurance procedures used during this investigation were in accordance with standard procedures and protocols as specified in the above referenced document. Spiking levels and recovery data are in the analytical report presented in Exhibit 5.1. No suspect data or deviation from the established protocol was noted.

6.0 TOXICOLOGICAL/CHEMICAL CHARACTERISTICS

Marshall Sittig, in his publication Hazardous and Toxic Effects of Industrial Chemicals, reports that OSHA and the American Conference of Governmental Industrial Hygienists, have adopted a threshold limit value for coal tar products. These are specifically for coal tar pitch volatiles described as "benzene-soluble" fractions. The limit is reported as 0.2 mg/m^3. This was established to minimize exposure to substances believed to be carcinogens; specifically anthracene, benzopyrene, phenanthrene, chrysene and pyrene. Based on review of toxicologic and epidemiologic evidence, it has been concluded that some materials contained in coal tar pitch can cause lung and skin cancer. Certain PAH's have been demonstrated as carcinogenic in animal tests. Most of the compounds found in these environmental samples were listed on the TSCA inventory. In addition, several chemicals are listed under RCRA. Of particular importance is dinitro-o-cresol (2-methyl, 4,6-dinitrophenol). This compound is reportedly highly toxic. It should also be noted that 2-nitrophenol is reported to react violently with potassium hydroxide and is known to cause kidney and liver damage. Many of the compounds found in this analysis are known carcinogens and have mutogenic potential. Other compounds are still being tested for their carcinogenic effect. A review of information in the SAX handbook indicates that these compounds have a rating of 3. The nitrophenols SAX ratings range from 3 to 2. More specific toxicology is presented in Exhibit 6.0.

7.0 CONCLUSIONS AND RECOMMENDATIONS

Analysis of environmental samples at the Alabama By-Products facility indicated that appreciable organic contamination is present on this site. This contamination can be classed as mainly nitro- and chlorophenols and PAH's. The highest contamination can be seen in the surface runoff ditch and equalization pond areas. Of specific concern are concentrations of 4,6 dinitro-o-cresol (reported as 2-methyl, 4,6-dinitrophenol). This organic is reportedly acutely toxic and its disposal is regulated as such under RCRA. Oily materials in the runoff ditch contained between 1,200 and 2,500 ppm of this compound. Both areas also contained between 2,000 and 4,000 ppm 2 chlorophenol. In addition, the equalization pond contained approximately 2,700 ppm of 2,4-dichlorophenol. By far, the highest contamination seen at this site were in oily materials found in the sediments at the equalization pond. This pond is not regulated under RCRA, as it is part of their NPDES treatment system. Although this pond is bentonite lined, it is unknown if the organic contamination extends beyond the lines. The highest organic contamination found in the surface runoff ditch was upstream. Oily tar-like material was evident in this area. It is unknown at this time how far organic contamination extends in the ditch area. The ditch ultimately leads to a holding pond. Sediments were not sampled in this pond; therefore, it is not known whether or not organics are present here as well.

Review of geologic information indicates that no site-specific information was available at this site. General information indicates the site lies on the Conasauga Formation, which is primarily limestone and thin partings of shale. This formation is known to have folded and fractured beds. In addition, there is a fault in close proximity to the site and highly

complex geologic structures are present throughout this area. Based on this information and the quantity and characteristics of organics found on this site, further action is recommended. The extent of contamination, its potential effect on the groundwater and employee exposure have yet to be determined.

EXHIBITS

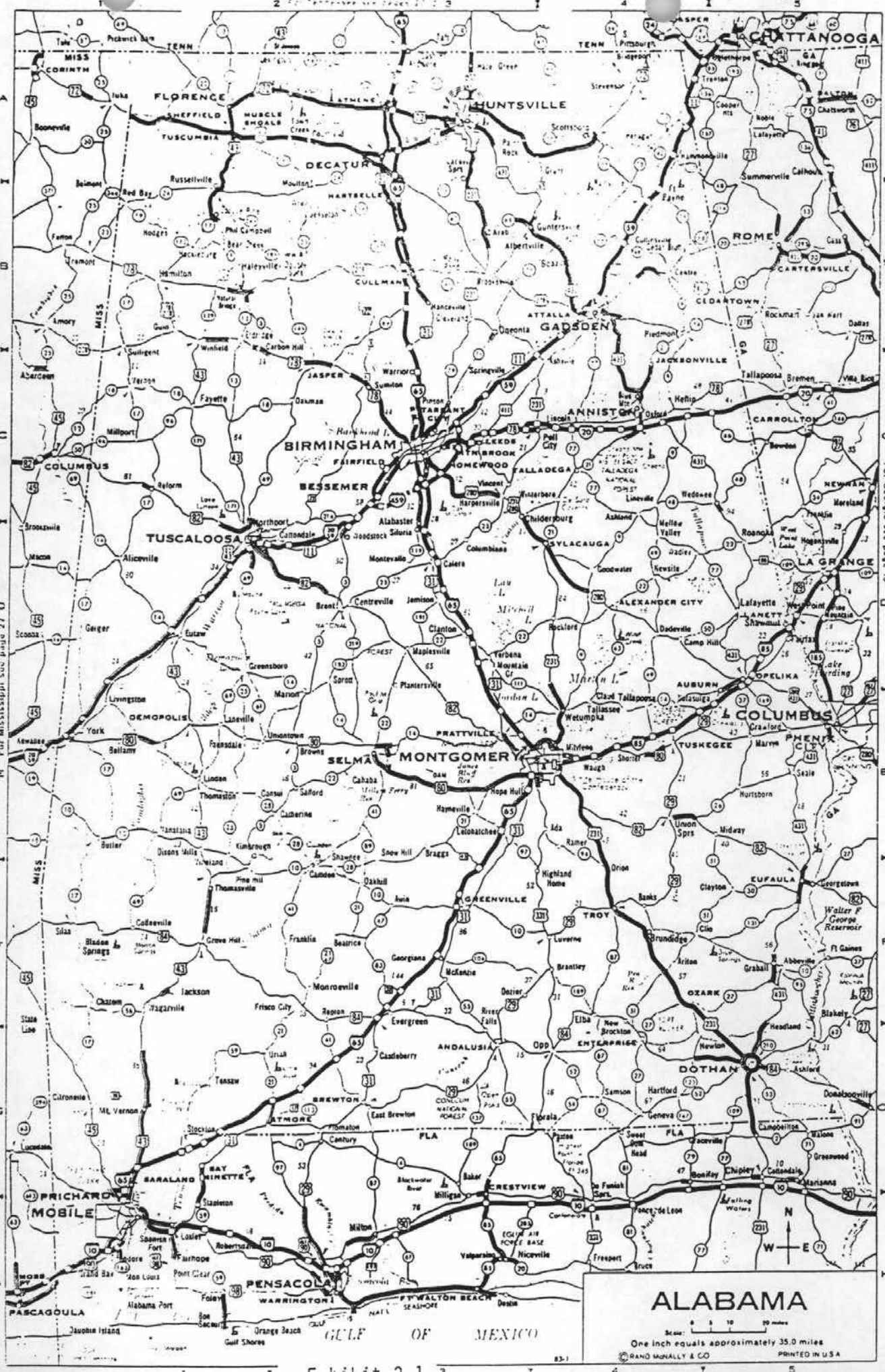
ALABAMA

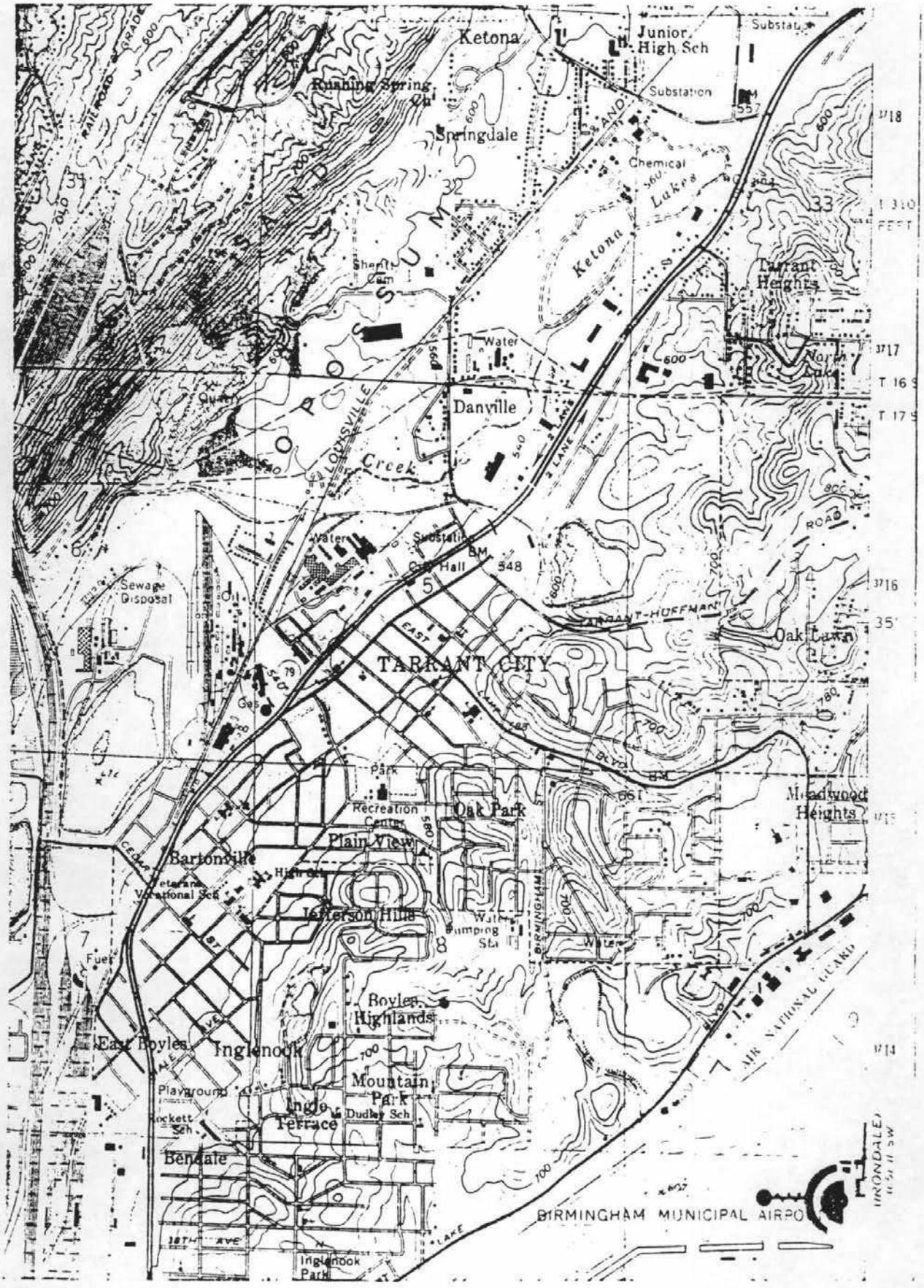
Population: 3,890,061
(1980 Census
Area: 51,609 Sq. Miles
Capital: Montgomery

Cities and Towns

For Mississippi see page 22

For Georgia see page 15

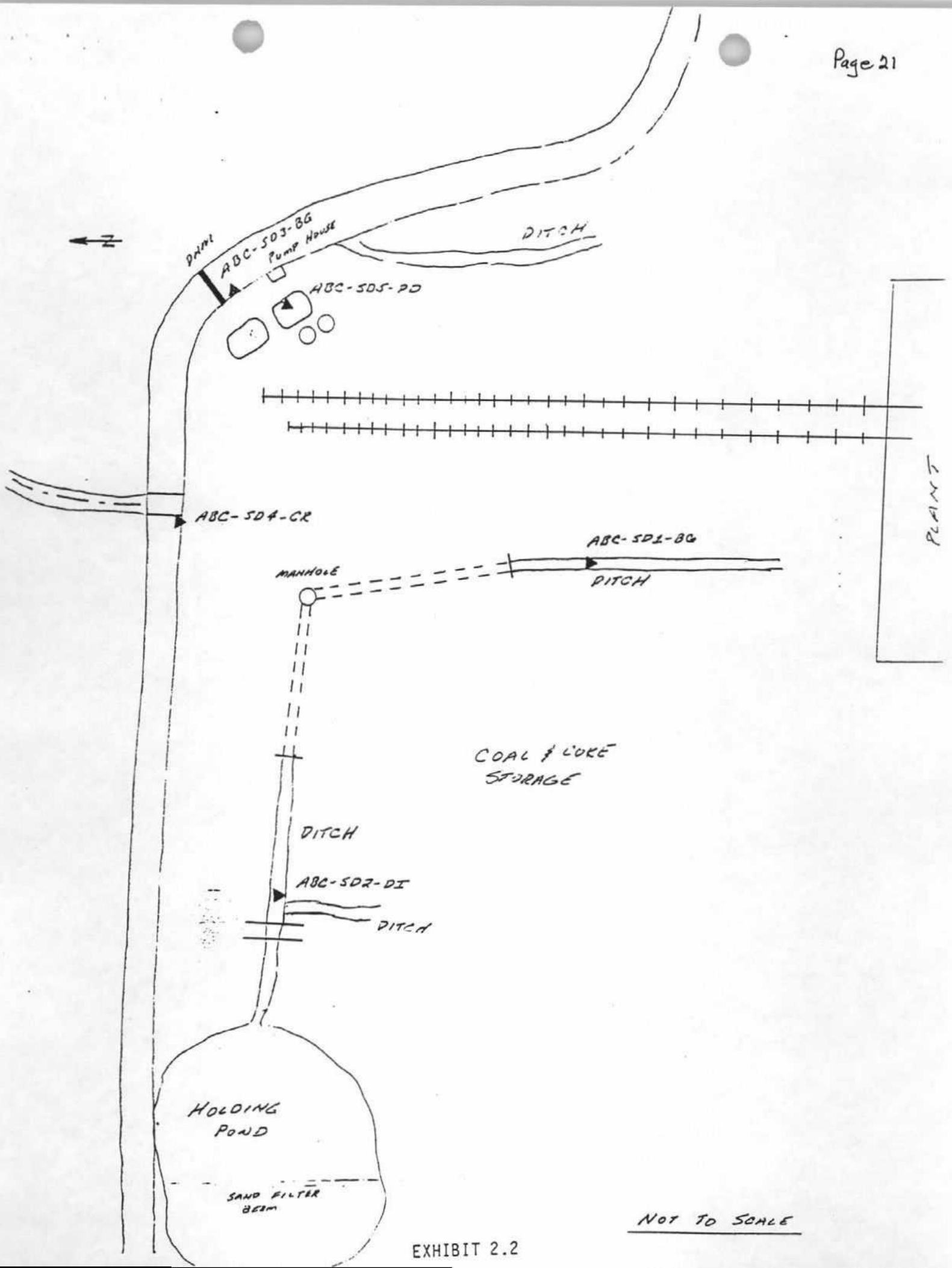




U.S.G.S. 7½ MIN. SERIES
NORTH BIRMINGHAM, ALABAMA

N

EXHIBIT 2.1



NOT TO SCALE

EXHIBIT 2.2

GEOLOGIC[illegible]URVEY [illegible]F ALABAMA
TH[illegible]MAS J. J[illegible].R
STATE GEOI[illegible]ST

[illegible] MAP 14
BIRMINGH[illegible]RTH QUADRANGLE
ALABA[illegible]JEFFERSON CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

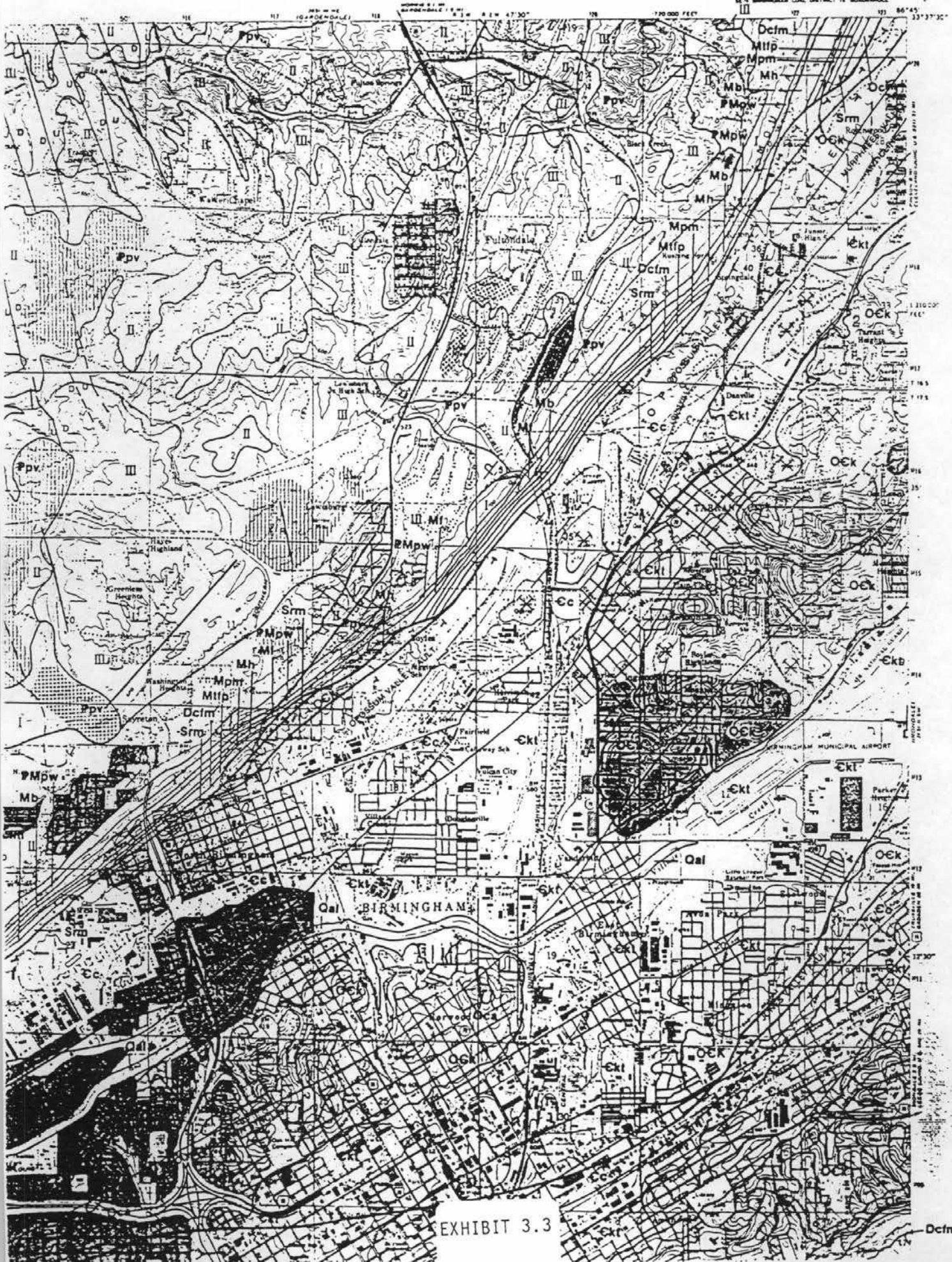


EXHIBIT 3.3

EXPLANATION

- Qal — Alluvium and low terrace deposits
- IPpv — Pottsville Formation
- IPMpw — Parkwood Formation
- Mf — Floyd Shale
- Mb — Bangor Limestone
- Mh — Hartselle Sandstone
- Mpm — Pride Mountain Formation
- Mtfp — Tuscumbia Limestone, Fort Payne Chert, and Maury Formation
- Dcfm — Chattanooga Shale and Frog Mountain Sandstone
- Sm — Red Mountain Formation
- Oc — Chickamauga Limestone
- Oca — Attalla Chert Conglomerate Member: Chickamauga Limestone
- OCk — Knox Group undifferentiated
- €kt — Ketona Dolomite
- €c — Conasauga Formation
- Contact, dotted where concealed
- Anticline, axial trace, dashed where inferred
- Syncline, axial trace, dotted where concealed
- Fault, amount and direction of displacement unknown, dashed where inferred, dotted where concealed
- U / D — Normal fault: U, upthrown side; D, downthrown side, dashed where inferred, dotted where concealed
- Thrust fault, T on upper plate, dashed where inferred
- 30 — Strike and dip of beds
- 34 — Strike and dip of overturned beds
- I — Sandy loam
- II — Silty loam
- III — Silty loam with shale fragments

  Soils associated with Pottsville Formation
- Area disturbed by strip mining
- Mine-waste dump
- Sinkhole
- Area most susceptible to subsidence by sinkhole collapse
- Surface subsidence, possible underground mine collapse
- 1 — Joint-measurement site (see below)
- Quarries
- Active
- Inactive

Alabama By-Products
ALD000823179

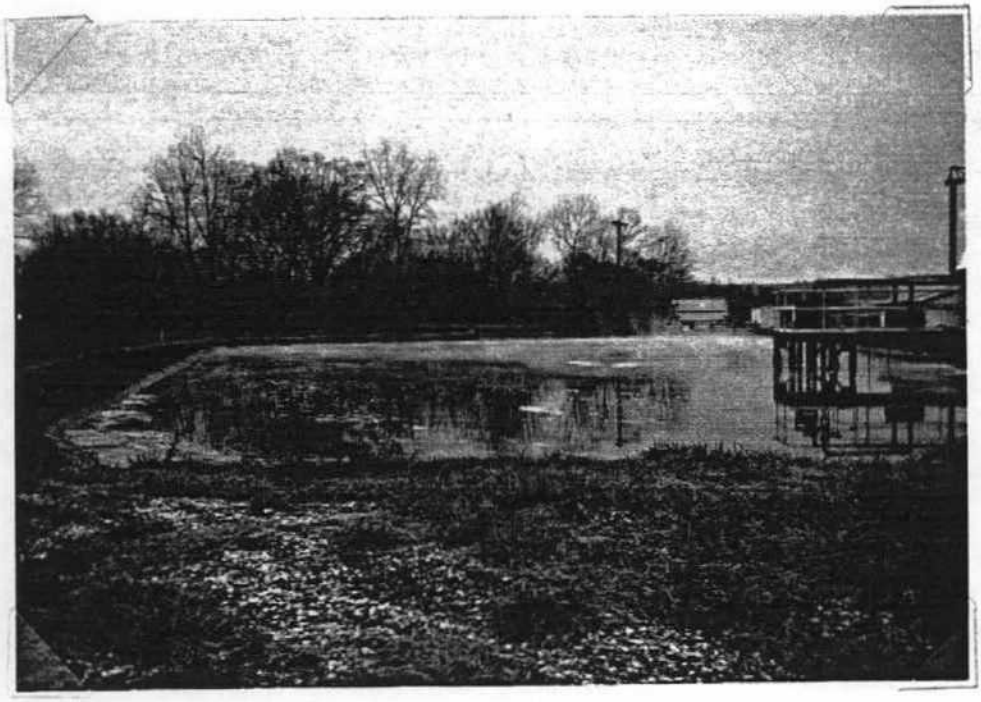
Area of upstream ditch sediment sample #ABC-SD1-BG.

Ditch Sample ABC-SD2-DI taken before culvert. Runoff from former disposal area runs to ditch. Holding pond in background.

Surface runoff holding pond.

Five Mile Creek at dam looking upstream. Water intake building in background.

Dam on Five Mile Creek. Location of sediment sample #ABC-SD3-BG.



Equalization basin sample #ABC-SD5-PD.

ENVIRONMENTAL PROTECTION SYSTEMS, INC.

P O Box 22382
126 Ustor Dr
Jackson Ms 39209
601 922 6242

7215 Pine Forest Rd
Pensacola Fl 32506
904 944 0301

ANALYTICAL REPORT

Date: March 13, 1985

Site: Alabama By-Products Tarrant Coke Plant
Tarrant, Alabama

Matrix: Soil

Client: Alabama Department of Environmental Management

Date Received: January 11, 1985

EPS Lab No.	EPS Field Identification
85010155	ABC-SD1-BG
85010156	ABC-SD2-DI
85010157	ABC-SD3-BG
85010158	ABC-SD4-CR
85010159	ABC-SD5-PD

Attached sheets list results of our analysis of above samples for: Cyanide, Base/Neutral Extractables, Acid Extractables

Analytical Reference No.: 85.1.366

Larry P. Stott
ociate Director of Analytical Services

EXHIBIT 5.1

ENVIRONMENTAL PROTECTION SYSTEMS, INC.

P.O. Box 20382 • 160 Upton Drive • Jackson, MS 39209
Telephone: (601) 922-8242

7215 Pine Forest Road • Pensacola, FL 32506
Telephone: (904) 944-0301

LABORATORY REPORT

85.1.366 | 1/4

CLIENT: Alabama Dept. of Environmental Mgmt.
LOCATION: Montgomery, Alabama
DATE: 03/14/85
INVOICE NO.: To be invoiced/bp

COLLECTED BY: EPS (174)
DATE COLLECTED: 01/10/85
DATE RECEIVED: 01/11/85
DATE ANALYZED: 01/28-03/13/85

LABORATORY SAMPLE IDENTIFICATION

85010155 - ABC - SD1 - BG
85010156 - ABC - SD2 - DI
85010157 - ABC - SD3 - BG
85010158 - ABC - SD4 - CR

ANALYSES	IDENTIFICATION NUMBER 155	156	157	158
Cyanide, Total, mg/kg	4.03	3.43	4.14	4.00
Base/Neutrals Extractables, Screen 110, ppm, except:	<0.01	<0.01	<0.01	<0.01
Naphthalene, ppm	74.2	8.37	<0.01	<0.01
Acenaphthylene, ppm	93.0	7.58	<0.01	<0.01
Fluorene, ppm	217	14.7	<0.01	<0.01
Anthracene, ppm	165	12.5	<0.01	<0.01
Phenanthrene, ppm	59.2	<0.01	<0.01	4.45
Fluoranthene, ppm	128	<0.01	<0.01	<0.01
Benzo(b)fluoranthene, ppm	22.5	<0.01	<0.01	<0.01
Chrysene, ppm	99.8	<0.01	<0.01	<0.01

COMMENT

Analyses conducted in accordance with 40 CFR, Part 261, May, 1980, Test Methods for Evaluating Solid Waste. Metal analysis reported on a dry weight basis. All samples collected under RCRA 3012 Program at Alabama By-Products Tarrant Coke Plant, Tarrant, Alabama.

CERTIFICATION

Herbert A. Johnston

ENVIRONMENTAL PROTECTION SYSTEMS, INC.

P.O. Box 20382 • 160 Upton Drive • Jackson, MS 39209
Telephone: (601) 922-8242

7215 Pine Forest Road • Pensacola, FL 32506
Telephone: (904) 944-0301

LABORATORY REPORT

85.1.366 | 2/4

CLIENT: Alabama Dept. of Environmental Mgmt.
LOCATION: Montgomery, Alabama
DATE: 03/14/85
INVOICE NO.: To be invoiced/bp

COLLECTED BY: EPS (174)
DATE COLLECTED: 01/10/85
DATE RECEIVED: 01/11/85
DATE ANALYZED: 01/28-03/13/85

LABORATORY SAMPLE IDENTIFICATION

85010155 - ABC - SD1 - BG
85010156 - ABC - SD2 - DI
85010157 - ABC - SD3 - BG
85010158 - ABC - SD4 - CR

ANALYSES	IDENTIFICATION NUMBER 155	156	157	158
Base/Neutrals Extractables, Screen 110, ppm, except:	<0.01	<0.01	<0.01	<0.01
Benzo(k)fluoranthene, ppm	12.4	8.57	<0.01	<0.01
Pyrene, ppm	<0.01	<0.01	<0.01	<0.01
Acid Extractables, Screen 111, ppm, except:	<0.01	<0.01	<0.01	<0.01
2-Chlorophenol, ppm	3,935	<0.01	<0.01	<0.01
2,4-Dichlorophenol, ppm	346	<0.01	<0.01	<0.01
2,4,6-Trichlorophenol, ppm	444	<0.01	<0.01	<0.01
4-Chloro 3-Methylphenol, ppm	74	<0.01	<0.01	<0.01
2-Methyl 4,6-Dinitrophenol, ppm	1,204	27.3	<0.01	22.9
4-Nitrophenol, ppm	280	<0.01	3.29	<0.01

COMMENT

Analyses conducted in accordance with 40 CFR, Part 261, May, 1980, Test Methods for Evaluating Solid Waste. All samples collected under RCRA 3012 Program at Alabama By-Products Tarrant Coke Plant, Tarrant, Alabama.

CERTIFICATION

Herbert A. Johnston

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P.O. Box 20382 • 160 Upton Drive • Jackson, MS 39209
Telephone: (601) 922-8242

7215 Pine Forest Road • Pensacola, FL 32506
Telephone: (904) 944-0301

LABORATORY REPORT

85.1.366 | 3/4

CLIENT: Alabama Dept. of Environmental Mgmt.
LOCATION: Montgomery, Alabama
DATE: 03/14/85
INVOICE NO.: To be invoiced/bp

COLLECTED BY: EPS (174)
DATE COLLECTED: 01/10/85
DATE RECEIVED: 01/11/85
DATE ANALYZED: 01/28-03/13/85

LABORATORY SAMPLE IDENTIFICATION

85010159 - ABC - SD5 - PD

ANALYSES	IDENTIFICATION NUMBER 159			
Cyanide, Total, mg/kg	9.29			
Base/Neutrals Extractables, Screen 110, ppm, except:	<0.01			
Naphthlene, ppm	357 —			
Fluorene, ppm	204			
Acenaphthylene, ppm	120			
Anthracene, ppm	124			
Pyrene, ppm	120 —			
Acid Extractables, Screen 111, ppm, except:	<0.01			
2-Chlorophenol, ppm	2,815			
2-Nitrophenol, ppm	712			

COMMENT

Analyses conducted in accordance with 40 CFR, Part 261, May, 1980, Test Methods for Evaluating Solid Waste. Metal analysis reported on a dry weight basis. All samples collected under RCRA 3012 Program at Alabama By-Products Tarrant Coke Plant, Tarrant, Alabama.

CERTIFICATION

Herbert A. Johnston

ENVIRONMENTAL PROTECTION SYSTEMS, INC.

P.O. Box 20382 • 160 Upton Drive • Jackson, MS 39209
Telephone: (601) 922-8242

7215 Pine Forest Road • Pensacola, FL 32506
Telephone: (904) 944-0301

LABORATORY REPORT

85.1.366 | 4/4

CLIENT: Alabama Dept. of Environmental Mgmt.
LOCATION: Montgomery, Alabama
DATE: 03/14/85
INVOICE NO.: To be invoiced/bp

COLLECTED BY: EPS (174)
DATE COLLECTED: 01/10/85
DATE RECEIVED: 01/11/85
DATE ANALYZED: 01/28-03/13/85

LABORATORY SAMPLE IDENTIFICATION

85010159 - ABC - SD5 - PD

ANALYSES	IDENTIFICATION NUMBER 159			
Acid Extractables, Screen 111, ppm, except:	<0.01			
2,4-Dimethylphenol, ppm	251			
2,4-Dichlorophenol, ppm	2,658			
2,4,6-Trichlorophenol, ppm	948			
4-Chloro 3-Methylphenol, ppm	809			
2-Methyl 4,6-Dinitrophenol, ppm	2,452			
4-Nitrophenol, ppm	896			

COMMENT

Analyses conducted in accordance with 40 CFR, Part 261, May, 1980, Test Methods for Evaluating Solid Waste. All samples collected under RCRA 3012 Program at Alabama By-Products Tarrant Coke Plant, Tarrant, Alabama.

CERTIFICATION

Herbert A. Johnston

LABORATORY RESOURCE REQUIREMENTS

Anticipated Date(s) of Sample Delivery: Jan. 1985

Analytical Needs:

Analysis	Water Samples	Soil Samples	Totals
Organics			
Acid Extractables:		5	5
Base/Neutrals:		5	5
Pesticides:			
Organics (Other:):			
Total Metals (Specified:):			
EP Toxic Metals (Specified:):			
VOA:			
Other: (CN)		5	5

PERSONNEL REQUIREMENTS

Field Personnel:

REGULATORY COORDINATION

EPA Project Officer: Joel Veater Phone No. 404/881-2234

Location: Atlanta, Georgia

Local Agency Contact: Steve Maurer Phone No. 205/271-7728

Location: Montgomery, Alabama

PROJECT SCHEDULE

Site Screening Study Form Transmittal Date:

Field Study Date:

Anticipated Data Receipt Date:

METHODOLOGY

All sample collection, sample preservation and chain-of-custody procedures used during this investigation will be in accordance with the standard operating procedures as specified in the Quality Control/Quality Assurance Plan for the Analytical and Environmental Division of Environmental Protection Systems, Inc., revised August 31, 1984. All laboratory analyses and quality assurance procedures used during this investigation will be in accordance with standard procedures and protocols as specified in the Quality Control/Quality Assurance Plan for the Analytical and Environmental Division of Environmental Protection Systems, Inc., revised August 31, 1984, or as specified by the existing United States Environmental Protection Agency standard procedures and protocols for the contract analytical laboratory program.

SAMPLING REQUIREMENTS

No. Water Samples: ___
No. Sludge Samples: ___
No. Soil/Sediment Samples: 5
Other: ___

Split Samples Requested?: ___ Yes ___ No ___ Unknown

If yes, reason: ___

Sample Information: Duplicate Samples: One Per Site

Station	Type	Organics Acid	Organics B/N	Organics Pest	Metals Total	Metals EPT	VOA	Other
ABC-SD1-DI	Sed./Comp.	X	X					CN
ABC-SD2-DI	Sed./Comp.	X	X					CN
ABC-SO1-RO	Soil/Comp.	X	X					CN
ABC-SO2-RO	Soil/Comp.	X	X					CN
ABC-SO3-RO	Soil/Comp.	X	X					CN

TOTALS:

Water	___
Soil	3
Sediment	2
Sludge	___
Other	___

ENVIRONMENTAL PROTECTION SYSTEMS, INC.

P O Box 20382
106 Upton Dr
Jackson Ms 39209
601 922 8242

7215 Pine Forest Rd
Pensacola Fl 32506
904 944 0301

EPA PRIORITY POLLUTANT ORGANICS

Base-Neutral Extractable Organics - Screen 110

Acenaphthene
Acenaphtnylene
Anthracene
Benzidine
Benzo(a)Anthracene
Benzo(a)Pyrene
3,4-Benzofluoranthene
Benzo(ghi)Perylene
Benzo(k)Fluoranthene
Bis(2-Chloroethoxy)Methane
Bis(2-Chloroethyl)Ether
Bis(2-Chloroisopropl)Ether
Bis(2-Ethylhexyl)Phthalate
4-Bromophenyl Phenyl Ether
Butylbenzyl Phthalate
2-Chloronaphthalene
4-Chlorophenyl Phenyl Ether
Chrysene
Dibenzo(a,h)Anthracene
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
3,3'-Dichlorobenzidine
Diethyl Phthalate
Dimethyl Phthalate
Di-N-Butyl Phthalate
2,4-Dinitrotoluene
2,6-Dinitrotoluene
Di-N-Octyl Phthalate
1,2-Diphenylhydrazine (as Azobenzene)
Fluoroanthene
Fluorene
Hexachlorobenzene
Hexachlorobutadiene
Hexachlorocyclopentadiene
Hexachloroethane
Indeno(1,2,3-cd)Pyrene
Isophorone
Napthalene
Nitrobenzene
N-Nitrosodimethylamine
N-Nitrosodi-N-Propylamine
N-Nitrosodiphenylamine
Phenanthrene
Pyrene
1,2,4-Trichlorobenzene

Acid Extractable Organics - Screen 111

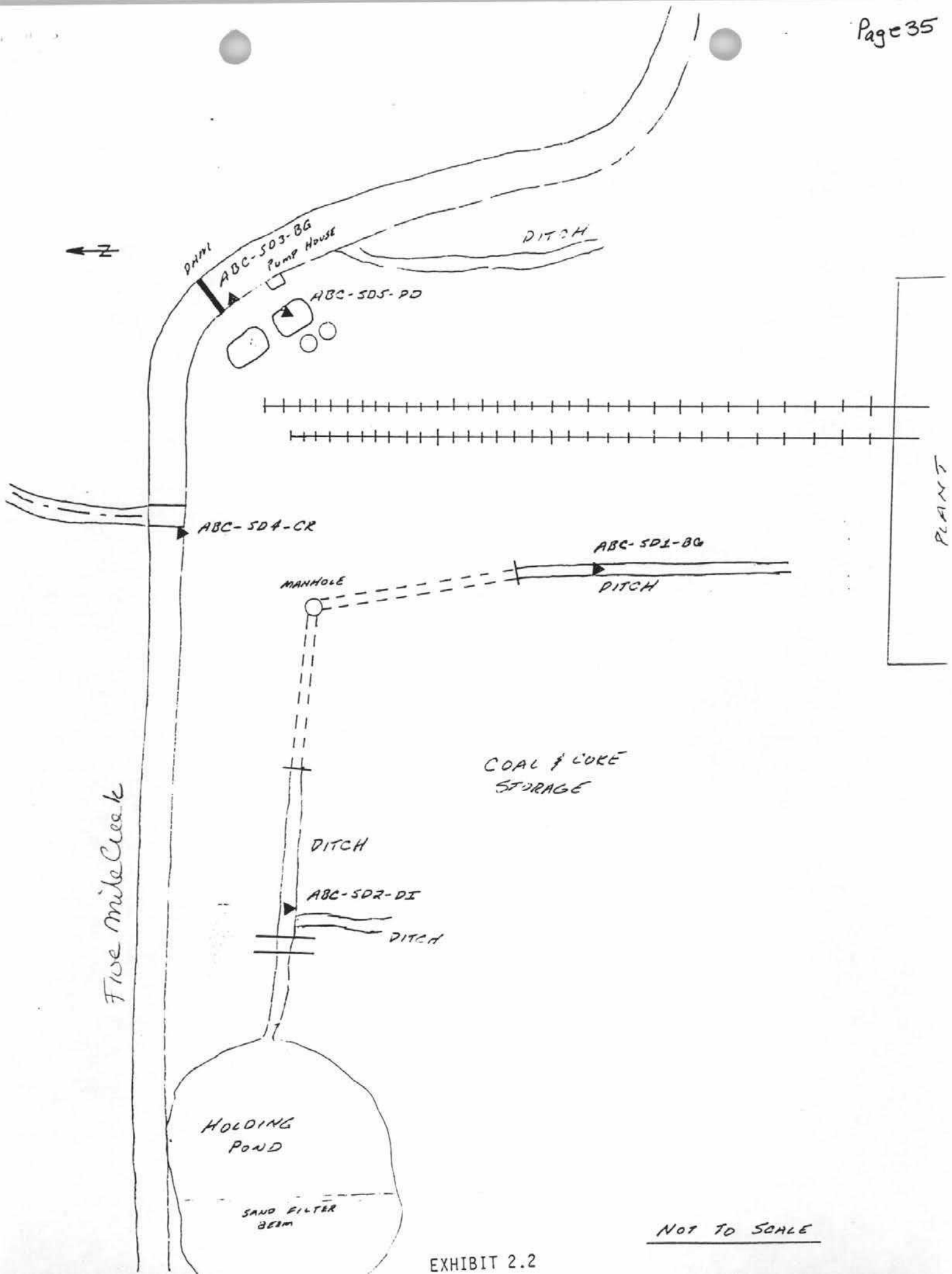
2-Chlorophenol
2,4-Dichlorophenol
2,4-Dimethylphenol
4,6-Dinitro-O-Cresol
2,4-Dinitrophenol
2-Nitrophenol
4-Nitrophenol
P-Chloro-M-Cresol
Pentachlorophenol
Phenol
2,4,6-Trichlorophenol

Volatile Organics - Screen 112

Acrolein
Acrylonitrile
Benzene
Bromoform
Carbon Tetrachloride
Chlorobenzene
Chlorodibromomethane
Chloroethane
2-Chloroethylvinyl Ether
Chloroform
Dichlorobromomethane
1,1-Dichloroethane
1,2-Dichloroethane
1,1-Dichloroethylene
1,2-Dichloropropane
1,2-Dichloropropylene
Ethylbenzene
Methyl Bromide
Methyl Chloride
Methylene Chloride
1,1,2,2-Tetrachloroethane
Tetrachloroethylene
Toluene
1,2-Trans-Dichloroethylene
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Trichloroethylene
Vinyl Chloride

Polychlorinated Biphenyls - Screen 113

Aroclor 1016
Aroclor 1221
Aroclor 1232
Aroclor 1242
Aroclor 1248
Aroclor 1254
Aroclor 1260



NOT TO SCALE

EXHIBIT 2.2

ENVIRONMENTAL PROTECTION SYSTEMS, INC.

P. O. Box 20382
106 Upton Dr.
Jackson, MS 39209
601 922 8242

7215 Pine Forest Rd.
Pensacola, FL 32506
904 944 0301

ANALYTICAL REPORT

Date: March 13, 1985

Site: Alabama By-Products Tarrant Coke Plant
Tarrant, Alabama

Matrix: Soil

Client: Alabama Department of Environmental Management

Date Received: January 11, 1985

Spiking and Recovery Data

EPS Lab No. 85010160

Parameter	Spiking Level (ppm)	Percent (%) Recovery
Cyanide	0.60	73.0
Hexachlorobenzene	20.0	89.0
Pentachlorophenol	20.0	93.0

Associate Director of Analytical Services

ENVIRONMENTAL PROTECTION SYSTEMS, INC.

P. O. Box 23382
106 Vector Dr
Jackson Ms 39209
601 922 6242

7215 Pine Forest Rd
Pensacola Fl 32506
904 944 0301

ANALYTICAL REPORT

Date: March 13, 1985

Site: Alabama By-Products Tarrant Coke Plant
Tarrant, Alabama

Matrix: Soil

Client: Alabama Department of Environmental Management

Date Received: January 11, 1985

EPS Lab No.	EPS Field Identification
85010155	ABC-SD1-BG
85010156	ABC-SD2-DI
85010157	ABC-SD3-BG
85010158	ABC-SD4-CR
85010159	ABC-SD5-PD

Attached sheets list results of our analysis of above samples for: Cyanide, Base/Neutral Extractables, Acid Extractables

Analytical Reference No.: 85.1.366

Larry P. Stitt
ociate Director of Analytical Services

EXHIBIT 5.1

Station Number	Remarks
ABC-SD1-DI	Sediment in discharge ditch
ABC-SD2-DI	Background sediment in ditch
ABC-SO1-RO	Runoff drainage area from possible disposal area
ABC-SO2-RO	Runoff drainage area from possible disposal area
ABC-SO3-RO	Background soil sample

ALABAMA BY-PRODUCTS CORPORATION

FOUNDRY COKE • COAL • COAL CHEMICALS

GENERAL OFFICES:
FIRST NATIONAL-SOUTHERN NATURAL BUILDING
P. O. BOX 10246 BIRMINGHAM, ALABAMA 35202

PHONE (205) 252-5171
TELEX NO. 59-610

MOYER B. EDWARDS
DIRECTOR ENVIRONMENTAL CONTROL

Reference No. 8

November 17, 1980

Environmental Protection Agency
Region IV
RCRA Activities
345 Courtland, N.E.
Atlanta, Georgia 30308

Attention: Mr. Mike Pratt

Dear Sir:

We are submitting the RCRA Forms No. 1 and 3 as required for obtaining "interim status" for existing waste management facilities. This application is being made for the treatment of hazardous waste in the event it is determined that a permit is required for our biological system.

This application is not entirely complete, however, upon the advice of Mr. Mike Pratt of your office we are making this submission in order not to jeopardize our obtaining an interim permit, if needed. The necessary data for completion of these forms will be forwarded to you as soon as it is received.

Yours truly,

Moyer B. Edwards

Moyer B. Edwards
Director Environmental Control

MBE:rl
Attachments

...ated ...only
...12 characters. ...n Approved OMB No. 158-R0175

FORM 1 GENERAL

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERAL INFORMATION

Consolidated Permits Program

(Read the "General Instructions" before starting.)

I. EPA I.D. NUMBER: F A L D 0 0 0 8 2 3 1 7 9 | D

LABEL ITEMS

I. EPA I.D. NUMBER

III. FACILITY NAME

V. FACILITY MAILING ADDRESS

VI. FACILITY LOCATION

Alabama By-Products Corporation
P. O. Box 10246
Birmingham, Alabama 35202

PLEASE PLACE LABEL IN THIS SPACE

First National-Southern Natural Building
20th Street & 5th Avenue North
Birmingham, Alabama

GENERAL INSTRUCTIONS

If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill-in area below. Also, if any of the preprinted data is absent *(the area to the left of the label space lists the information that should appear)*, please provide it in the proper fill-in area(s) below. If the label is complete and correct, you need not complete Items I, III, V, and VI *(except VI-B which must be completed regardless)*. Complete all items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of bold-faced terms.

SPECIFIC QUESTIONS	MARK "X" YES	NO	FORM ATTACHED	SPECIFIC QUESTIONS	MARK "X" YES	NO	FORM ATTACHED
A. Is this facility a publicly owned treatment works which results in a discharge to waters of the U.S.? (FORM 2A)		X		B. Does or will this facility *(either existing or proposed)* include a concentrated animal feeding operation or aquatic animal production facility which results in a discharge to waters of the U.S.? (FORM 2B)		X	
C. Is this a facility which currently results in discharges to waters of the U.S. other than those described in A or B above? (FORM 2C)	X		*	D. Is this a proposed facility *(other than those described in A or B above)* which will result in a discharge to waters of the U.S.? (FORM 2D)		X	
E. Does or will this facility treat, store, or dispose of hazardous wastes? (FORM 3)	X		X	F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)		X	
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)		X		H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)		X	
I. Is this facility a proposed stationary source which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		X		J. Is this facility a proposed stationary source which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		X	

III. NAME OF FACILITY

1 SKIP: ALABAMA BY PRODUCTS CORPORATION

IV. FACILITY CONTACT

A. NAME & TITLE *(last, first, & title)*	B. PHONE *(area code & no.)*
2 EDWARDS MOYER DIR ENV CONTROL	205 252 5171

V. FACILITY MAILING ADDRESS

A. STREET OR P.O. BOX

3 P O Box 10246

B. CITY OR TOWN	C. STATE	D. ZIP CODE
4 BIRMINGHAM	AL	35202

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER

5 ALA ST & HUNTSVILLE RD

B. COUNTY NAME

JEFFERSON

C. CITY OR TOWN	D. STATE	E. ZIP CODE	F. COUNTY CODE (if known)
6 TARRANT	AL	35217	

EPA Form 3510-1 (6-80)

* VPDES NO. AL 0003417

CONTINUE ON REVERSE

Please print or type in the unshaded areas only
(fill-in areas are spaced for elite type, 12 characters/inch).

Form Approved. OMB No. 158-S80004

FORM 3 RCRA

U.S. ENVIRONMENTAL PROTECTION AGENCY

HAZARDOUS WASTE PERMIT APPLICATION

Consolidated Permits Program

(This information is required under Section 3005 of RCRA.)

I. EPA I.D. NUMBER: F A L D 0 0 0 8 2 3 1 7 9

FOR OFFICIAL USE ONLY

APPLICATION APPROVED	DATE RECEIVED (yr., mo., & day)	COMMENTS

II. FIRST OR REVISED APPLICATION

Place an "X" in the appropriate box in A or B below *(mark one box only)* to indicate whether this is the first application you are submitting for your facility or a revised application. If this is your first application and you already know your facility's EPA I.D. Number, or if this is a revised application, enter your facility's EPA I.D. Number in Item I above.

A. FIRST APPLICATION *(place an "X" below and provide the appropriate date)*

[X] 1. EXISTING FACILITY *(See instructions for definition of "existing" facility. Complete item below.)*

[ ] 2. NEW FACILITY *(Complete item below.)*

FOR EXISTING FACILITIES, PROVIDE THE DATE (yr., mo., & day) OPERATION BEGAN OR THE DATE CONSTRUCTION COMMENCED *(use the boxes to the left)*: YR. 20 | MO. 2 | DAY 8

FOR NEW FACILITIES, PROVIDE THE DATE (yr., mo., & day) OPERATION BEGAN OR IS EXPECTED TO BEGIN: YR. | MO. | DAY

B. REVISED APPLICATION *(place an "X" below and complete Item I above)*

[ ] 1. FACILITY HAS INTERIM STATUS

[ ] 2. FACILITY HAS A RCRA PERMIT

III. PROCESSES — CODES AND DESIGN CAPACITIES

A. PROCESS CODE — Enter the code from the list of process codes below that best describes each process to be used at the facility. Ten lines are provided for entering codes. If more lines are needed, enter the code(s) in the space provided. If a process will be used that is not included in the list of codes below, then describe the process *(including its design capacity)* in the space provided on the form *(Item III-C)*.

B. PROCESS DESIGN CAPACITY — For each code entered in column A enter the capacity of the process.

1. AMOUNT — Enter the amount.
2. UNIT OF MEASURE — For each amount entered in column B(1), enter the code from the list of unit measure codes below that describes the unit of measure used. Only the units of measure that are listed below should be used.

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Storage:		
CONTAINER (barrel, drum, etc.)	S01	GALLONS OR LITERS
TANK	S02	GALLONS OR LITERS
WASTE PILE	S03	CUBIC YARDS OR CUBIC METERS
SURFACE IMPOUNDMENT	S04	GALLONS OR LITERS
Disposal:		
INJECTION WELL	D79	GALLONS OR LITERS
LANDFILL	D80	ACRE-FEET (the volume that would cover one acre to a depth of one foot) OR HECTARE-METER
LAND APPLICATION	D81	ACRES OR HECTARES
OCEAN DISPOSAL	D82	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	D83	GALLONS OR LITERS
Treatment:		
TANK	T01	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	T02	GALLONS PER DAY OR LITERS PER DAY
INCINERATOR	T03	TONS PER HOUR OR METRIC TONS PER HOUR; GALLONS PER HOUR OR LITERS PER HOUR
OTHER *(Use for physical, chemical, thermal or biological treatment processes not occurring in tanks, surface impoundments or incinerators. Describe the processes in the space provided; Item III-C.)*	T04	GALLONS PER DAY OR LITERS PER DAY

UNIT OF MEASURE	UNIT OF MEASURE CODE
GALLONS	G
LITERS	L
CUBIC YARDS	Y
CUBIC METERS	C
GALLONS PER DAY	U
LITERS PER DAY	V
TONS PER HOUR	D
METRIC TONS PER HOUR	W
GALLONS PER HOUR	E
LITERS PER HOUR	H
ACRE-FEET	A
HECTARE-METER	F
ACRES	B
HECTARES	Q

EXAMPLE FOR COMPLETING ITEM III *(shown in line numbers X-1 and X-2 below)*: A facility has two storage tanks, one tank can hold 200 gallons and the other can hold 400 gallons. The facility also has an incinerator that can burn up to 20 gallons per hour.

C DUP 1

LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY 1. AMOUNT (specify)	B. PROCESS DESIGN CAPACITY 2. UNIT OF MEASURE (enter code)	FOR OFFICIAL USE ONLY	LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY 1. AMOUNT	B. PROCESS DESIGN CAPACITY 2. UNIT OF MEASURE (enter code)	FOR OFFICIAL USE ONLY
X-1	S02	600	G		5				
X-2	T03	20	E		6				
1	T02	488,000	G		7				
2	T01	610,000	G		8				
3					9				
4					10				

Continued from page 2.

NOTE: Photocopy this page before completing if you have more than 26 wastes to list.

Form Approved OMB No. 158-S80004

EPA I.D. NUMBER (enter from page 1)															FOR OFFICIAL USE ONLY													
W	A	L	D	0	0	0	8	2	3	1	7	9	T/A	C	W	DUP										T/A	C	DUP
														I													2	

IV. DESCRIPTION OF HAZARDOUS WASTES (continued)

No.	A. EPA HAZARDOUS WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES: PROCESS CODES (enter)				D. PROCESSES: PROCESS DESCRIPTION (If a code is not entered in D(1))
1	U188	192	T	T04				
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								

CONTINUE ON REVERSE

Coke Plant Water Balance

ALABAMA BY-PRODUCTS CORPORATION

FOUNDRY COKE • COAL • COAL CHEMICALS

GENERAL OFFICES
FIRST NATIONAL-SOUTHERN NATURAL BUILDING
P. O. BOX 10246 BIRMINGHAM, ALABAMA 35202

PHONE (205) 250-5400
TELEX NO. 59-810

MOYER B. EDWARDS
DIRECTOR ENVIRONMENTAL CONTROL

Reference No. 9

May 5, 1983

Mr. David Roberson
Land Program
Alabama Department of Environmental Management
State Capitol
Montgomery, Alabama 36130

Subject: Withdrawal Request Part "A"

Dear Mr. Roberson:

We respectfully request that the Part "A" application as submitted by Alabama By-Products Corporation, facility ID - ALD000823179 be withdrawn. This is due to the fact that decanter tar sludge (K-087) is recycled to product for sale.

Sincerely,

Moyer B. Edwards
Director Environmental Control

MBE:rl

DH

[redacted]

— Reference No. 10 —

NOV 8 1985

4WD-RM

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Moyer B. Edwards
Manager of Environmental Resources
Alabama By-Products Corporation
Post Office Box 10246
Birmingham, Alabama 35202

Re: Alabama By-Products, Tarrant, Alabama
EPA I.D. Number ALD 000 823 179

Dear Mr. Edwards:

EPA has completed the review of your submittal, concerning Alabama By-Products Corporation's request for withdrawal from interim status. This letter serves to notify you of EPA's final determination.

Currently, Alabama By-Products Corporation (ABC) has interim status for management of decanter tank tar sludge (K087) in a treatment tank (T01) with a design capacity of 257,000 gallons per day. The information you submitted on September 23, 1985 indicated that the sludge is generated in the decanter tank, routed to a second tank for mixing with hot product coal tar, and then pumped to a final product storage tank. The information you submitted on October 10, 1985 indicated that the mixture is sold to a customer who processes it further. ABC has requested withdrawal from interim status, based upon the position that no waste is produced by this process, since the sludge is a product material.

EPA has determined that the decanter tank tar sludge could not be used as an effective replacement for the product coal tar. Also, the sludge does not contribute any significant property elements to the coal tar. Therefore, the mixing of decanter tank tar sludge and coal tar does not constitute legitimate recycling, and is being done in lieu of abandoning (disposal). According to 40 CFR §261.2(b)(3) the sludge is "solid waste," since it is being treated and stored before or in lieu of abandoning.

A solid waste which is listed in 40 CFR §261.32 is a "hazardous waste," and a mixture of a solid waste and other materials is a "hazardous waste."

Docket 13

Since ABC manages a hazardous waste (K087) in the decanter tank, the mixing tank, and the final storage tank; each must be included on the Part A. An interim status withdrawal cannot be granted. Also, as you are aware, the Part B has been called for your facility. The effective due date is November 8, 1985. Failure to submit a requested Part B application on time, or to furnish in full the information required in the Part B, is grounds for termination of interim status under 40 CFR §270.10(a)(5).

Concerning the equalization basin, the post aeration basin, and the storm runoff basin, the information you submitted indicates that these units neither contain nor receive a characteristic or listed hazardous waste (40 CFR Part 261). It therefore appears that these units are not currently subject to RCRA regulations.

If you have any questions concerning our comments or requirements for a Part B application, please contact Mr. Paul Conrad in our Waste Engineering Section 404/881-3067.

Sincerely yours,

James H. Scarbrough, P.E., Chief
Residuals Management Branch
Waste Management Division

cc: Daniel E. Cooper, Alabama Department of Environmental Management
James Neal, Alabama Department of Environmental Management
Margaret Corey, Alabama Department of Environmental Management
H.E. Withers, Vice President, Alabama By-Products Corporation

[redacted]

— Reference No. 11 —

JUN 17 1986

4WD-PM

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Moyer B. Edwards
Manager of Environmental Affairs
Alabama By-Products Corporation
Post Office Box 10246
Birmingham, Alabama 35202

Re: Alabama By-Products Corporation (ABC)
Tarrant, Alabama
EPA I.D. Number ALD 000 823 179

Dear Mr. Edwards:

We have reviewed your May 28, 1986 letter requesting withdrawal of ABC's Part A application, and change to Generator Status. This letter provides EPA's determination, and requests further information under authority of §3007 of the Resource Conservation and Recovery Act (RCRA), concerning other ABC waste production.

According to your letter, ABC no longer mixes the decanter tank tar sludge (K087) with coal tar. We understand that the process has been revised so that the K087 is scraped out of the decanter tank, funnelled through a small cone tank, and double bagged. The bags are stored in shallow metal tanks for less than 90 days (approximately 24 hours), and placed in the ovens with coal, for coking and energy recovery.

Your letter requests that ABC be placed on Generator Status rather than TSD status, based upon the following:

1. According to 40 CFR §261.4(c), a hazardous waste generated in a manufacturing process unit is not regulated until it exits the unit in which it was generated (unless the unit is a surface impoundment). ABC's decanter tank is used to produce the product coal tar and flushing liquor. Therefore, the heavy K087 fraction is not regulated until it exits the decanter tank. Thus the decanter tank is not a regulated unit.

2. 40 CFR §262.34(a) indicates that storage in tanks or containers for less than 90 days does not require a permit or interim status, provided that 40 CFR §§262.34(a)(1-4) are met. The double bags are stored less than 90 days. Therefore, the bag storage units do not need interim status.

Docket 15

JUN 1986
RECEIVED
ADEM
Land Division

3. According to 40 CFR §§261.6(a)(3)(vii) (and the Preamble) promulgated in the November 29, 1985 Federal Register, K087 is exempt from regulation when it is burned for energy recovery, by mixing with coal to produce coke.

Based upon the above, your May 28, 1986 and June 6, 1986 notifications that ARC will comply with the requirements of 40 CFR §262.34, it appears that the requested change to generator status is appropriate. Therefore, as requested, ARC has been placed on Generator Status. As a Generator, submittal of a Part B application is not required, but you are responsible for meeting all applicable requirements of 40 CFR Part 262. Also, the Part A application and EPA identification number will be retained in our files, in the event that ARC requests a future status change.

EPA reserves the right to conduct future inspections to determine compliance with all applicable provisions of the Resource Conservation and Recovery Act, as amended.

The following paragraph concerns wastes produced by ARC's ammonia still. Upon reviewing your file to compile this letter, a discrepancy has come to our attention. On September 23, 1985, ARC reported that the Tarrant facility generates no ammonia still sludge. Other coke plants with similar ammonia recovery processes (using sodium hydroxide as the alkali) are known to produce hazardous sludges. We are therefore requesting that ARC provide a detailed explanation which clarifies how no sludge generation is achieved. This explanation should be in writing, and submitted to this office, within fifteen (15) days of receipt of this letter.

If you have any questions concerning any of the above, please contact Mr. Paul Conrad of our Waste Engineering Section at (404) 347-3067.

Sincerely yours,

/s/ Jack E. Ravan
Regional Administrator

Jack E. Ravan
Regional Administrator

cc: Daniel E. Cooper, Alabama Department of Environmental Management
James Neal, Alabama Department of Environmental Management
H.E. Withers, Vice President, Alabama By-Products Corporation

Reference No. 12

ADEM

ALABAMA
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT

PERMITTEE: ABC COKE DIVISION
DRUMMOND COMPANY, INC.

FACILITY LOCATION: RAILROAD AVENUE
TARRANT, ALABAMA

EAD 6/4/89

PERMIT NUMBER: AL0003417

RECEIVING WATERS

Five Mile Creek

In accordance with and subject to the provisions of the Federal Water Pollution Control Act, as amended, 33 U.S.C. §§ 1251-1378 (the "FWPCA"), the Alabama Water Pollution Control Act, as amended, ***Code of Alabama 1975****, §§ 22-22-1 to 22-22-14 (the "AWPCA"), the Alabama Environmental Management Act, as amended,* ***Code of Alabama 1975****, §§ 22-22A-1 to 22-22A-15, and rules and regulations adopted thereunder, and subject further to the discharge limitations, monitoring requirements and other terms and conditions set forth in Parts I, II and III hereof, the Permittee is hereby authorized to discharge into the above-named receiving waters.*

ISSUANCE DATE: March 20, 1989

EFFECTIVE DATE: April 1, 1989

EXPIRATION DATE: March 31, 1994

Alabama Department of Environmental Management

TABLE OF CONTENTS

PART I

A. DISCHARGE LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s)), described more fully in the permittee's application: DSN001: Treated Process Wastewater and Contaminated Runoff from Coke Making Operations

Such discharge shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations*			Monitoring Requirements**	
	Daily Minimum	Daily Maximum	Monthly Average	Measurement Frequency	Sample Type
Ammonia (N)	-----	137.3 mg/l	-----	3/week	Composite***
Phenols (4AAP)	-----	25.1 mg/l	-----	1/week	Grab
Benzene	-----	130.2 mg/l	-----	1/6 months	Grab
Naphthalene	-----	56.5 mg/l	-----	1/6 months	Grab

*See Part II., A., 4; Part II., A., 5; and Part II., B., 3.
**Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Samples taken shall then be analyzed for the specific parameters in accordance with Part I.B.2.
***Composite samples shall be 24-hour time proportioned.

PART I

A. DISCHARGE LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s)), described more fully in the permittee's application: **DSN001: Treated Process Wastewater and Contaminated Runoff from Coke Making Operations**

Such discharge shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations*(1)			Monitoring Requirements**	
	Daily Minimum	Daily Average	Daily Maximum	Measurement Frequency	Sample Type
Flow (MGD)	-----	-----	-----	1/day	Totalizer
pH	6.0 s.u.	-----	9.0 s.u.	1/day	Grab
Total Suspended Solids	-----	602 ppd	1161 ppd	3/week	Composite***
Oil and Grease	-----	49.9 ppd	150 ppd	1/week	Grab
Ammonia (N)	-----	76.1 ppd	259.3 ppd	3/week	Composite***
Cyanide	-----	16.8 ppd	30.5 ppd	1/week	Grab
Phenols (4AAP)	-----	0.153 ppd	0.305 ppd	1/week	Grab
Benzene	-----	-----	0.153 ppd	1/6 months	Grab
Naphthalene	-----	-----	0.153 ppd	1/6 months	Grab
Benzo(a)Pyrene	-----	-----	0.153 ppd	1/6 months	Grab
Production, Tons/day	n/a	-----	n/a	1/month	Calculated
Toxicity	See Part III.I.				

(1) The above limitations are based on a demonstrated monthly average production rate of 2,150 tons/day and are subject to permit conditions stated in Part III.J.

*SEE PART II., A., 4; PART II., A., 5; AND PART II., B., 3., AND PART III.J.
**SAMPLES COLLECTED TO COMPLY WITH THE MONITORING REQUIREMENTS SPECIFIED ABOVE SHALL BE COLLECTED AT THE FOLLOWING LOCATION: AT THE NEAREST ACCESSIBLE LOCATION JUST PRIOR TO DISCHARGE AND AFTER FINAL TREATMENT. SAMPLES TAKEN SHALL THEN BE ANALYZED FOR THE SPECIFIC PARAMETERS IN ACCORDANCE WITH PART I.B.2.
***COMPOSITE SAMPLES SHALL BE 24-HOUR TIME PROPORTIONED.

PART I

A. DISCHARGE LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s)), described more fully in the permittee's application: DSN001: Treated Process Wastewater and Contaminated Runoff from Coke Making Operations

(1) The below limitations are based on a demonstrated monthly average production rate of 2,150 ton/day and are subject to permit conditions stated in Part IV.B.

Such discharge shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations*			Monitoring Requirements**	
	Daily Minimum	Daily Maximum	Monthly Average	Measurement Frequency	Sample Type
Flow	-----	-----	-----	1/day	Totalizer
pH	6.0 s.u.	9.0 s.u.	-----	1/day	Grab
Total Suspended Solids	-----	1161 ppd	602 ppd	3/week	Composite***
Oil and Grease	-----	150 ppd	49.9 ppd	1/week	Grab
Ammonia (N)	-----	259.3 ppd	76.1 ppd	3/week	Composite***
Cyanide	-----	30.5 ppd	16.8 ppd	1/week	Grab
Phenols (4AAP)	-----	0.305 ppd	0.153 ppd	1/week	Grab
Benzene	-----	0.153 ppd	-----	1/6 months	Grab
Naphthalene	-----	0.153 ppd	-----	1/6 months	Grab
Benzo(a)Pyrene	-----	0.153 ppd	-----	1/6 months	Grab
Production, Tons/day	-----	-----	-----	1/month	Calculated
Toxicity	See Part IV.A.				

*See Part II., A., 4; Part II., A., 5; and Part II., B., 3.
**Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Samples taken shall then be analyzed for the specific parameters in accordance with Part I.B.2.
***Composite samples shall be 24-hour time proportioned.

PART I

A. DISCHARGE LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s)), described more fully in the permittee's application: DSN001: Treated Process Wastewater and Contaminated Runoff from Coke Making Operations

(1) The below limitations are based on a demonstrated monthly average production rate of 2,350 ton/day and are subject to permit conditions stated in Part IV.B.

Such discharge shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations*			Monitoring Requirements**	
	Daily Minimum	Daily Maximum	Monthly Average	Measurement Frequency	Sample Type
Flow	-----	-----	-----	1/day	Totalizer
pH	6.0 s.u.	9.0 s.u.	-----	1/day	Grab
Total Suspended Solids	-----	1269 ppd	658 ppd	3/week	Composite***
Oil and Grease	-----	164 ppd	54.5 ppd	1/week	Grab
Ammonia (N)	-----	283.4 ppd	83.2 ppd	3/week	Composite***
Cyanide	-----	33.3 ppd	18.2 ppd	1/week	Grab
Phenols (4AAP)	-----	0.333 ppd	0.167 ppd	1/week	Grab
Benzene	-----	0.167 ppd	-----	1/6 months	Grab
Naphthalene	-----	0.167 ppd	-----	1/6 months	Grab
Benzo(a)Pyrene	-----	0.167 ppd	-----	1/6 months	Grab
Production, Tons/day	-----	-----	-----	1/month	Calculated
Toxicity	See Part IV.A.				

*See Part II., A., 4; Part II., A., 5; and Part II., B., 3.
**Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Samples taken shall then be analyzed for the specific parameters in accordance with Part I.B.2.
***Composite samples shall be 24-hour time proportioned.

PART I

A. DISCHARGE LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s)), described more fully in the permittee's application: DSN001: Treated Process Wastewater and Contaminated Runoff from Coke Making Operations .

(1) The below limitations are based on a demonstrated monthly average production rate of 2,550 ton/day and are subject to permit conditions stated in Part IV.B.

Such discharge shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations*			Monitoring Requirements**	
	Daily Minimum	Daily Maximum	Monthly Average	Measurement Frequency	Sample Type
Flow	-----	-----	-----	1/day	Totalizer
pH	6.0 s.u.	9.0 s.u.	-----	1/day	Grab
Total Suspended Solids	-----	1377 ppd	714 ppd	3/week	Composite***
Oil and Grease	-----	178 ppd	59.2 ppd	1/week	Grab
Ammonia (N)	-----	308 ppd	90.3 ppd	3/week	Composite***
Cyanide	-----	36.2 ppd	19.9 ppd	1/week	Grab
Phenols (4AAP)	-----	0.362 ppd	0.181 ppd	1/week	Grab
Benzene	-----	0.181 ppd	-----	1/6 months	Grab
Naphthalene	-----	0.181 ppd	-----	1/6 months	Grab
Benzo(a)Pyrene	-----	0.181 ppd	-----	1/6 months	Grab
Production, Tons/day	-----	-----	-----	1/month	Calculated
Toxicity	See Part IV.A.				

*See Part II., A., 4; Part II., A., 5; and Part II., B., 3.
**Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Samples taken shall then be analyzed for the specific parameters in accordance with Part I.B.2.
***Composite samples shall be 24-hour time proportioned.

PART I

A. DISCHARGE LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s)), described more fully in the permittee's application: DSN001: Treated Process Wastewater and Contaminated Runoff from Coke Making Operations

(1) The below limitations are based on a demonstrated monthly average production rate of 2,750 ton/day and are subject to permit conditions stated in Part IV.B.

Such discharge shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations*			Monitoring Requirements**	
	Daily Minimum	Daily Maximum	Monthly Average	Measurement Frequency	Sample Type
Flow	-----	-----	-----	1/day	Totalizer
pH	6.0 s.u.	9.0 s.u.	-----	1/day	Grab
Total Suspended Solids	-----	1485 ppd	770 ppd	3/week	Composite***
Oil and Grease	-----	192 ppd	63.8 ppd	1/week	Grab
Ammonia (N)	-----	332 ppd	97.4 ppd	3/week	Composite***
Cyanide	-----	39.0 ppd	21.4 ppd	1/week	Grab
Phenols (4AAP)	-----	0.390 ppd	0.195 ppd	1/week	Grab
Benzene	-----	0.195 ppd	-----	1/6 months	Grab
Naphthalene	-----	0.195 ppd	-----	1/6 months	Grab
Benzo(a)Pyrene	-----	0.195 ppd	-----	1/6 months	Grab
Production, Tons/day	-----	-----	-----	1/month	Calculated
Toxicity	See Part IV.A.				

*See Part II., A., 4; Part II., A., 5; and Part II., B., 3.
**Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Samples taken shall then be analyzed for the specific parameters in accordance with Part I.B.2.
***Composite samples shall be 24-hour time proportioned.

PART I

A. DISCHARGE LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s)), described more fully in the permittee's application: **DSN001: Treated Process Wastewater and Contaminated Runoff from Coke Making Operations**

Such discharge shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations*			Monitoring Requirements**	
	Daily Minimum	Daily Average	Daily Maximum	Measurement Frequency	Sample Type
Ammonia-N	-----	-----	137.3 mg/l	3/week	Composite***
Phenols (4AAP)	-----	-----	25.1 mg/l	1/week	Grab
Benzene	-----	-----	130.2 mg/l	1/6 months	Grab
Naphthalene	-----	-----	56.5 mg/l	1/6 months	Grab

*SEE PART II., A., 4; PART II;, A., 5; PART II., B.3; AND PART III.I.
**SAMPLES COLLECTED TO COMPLY WITH THE MONITORING REQUIREMENTS SPECIFIED ABOVE SHALL BE COLLECTED AT THE FOLLOWING LOCATION: AT THE NEAREST ACCESSIBLE LOCATION JUST PRIOR TO DISCHARGE AND AFTER FINAL TREATMENT. SAMPLES TAKEN SHALL THEN BE ANALYZED FOR EACH EFFLUENT CHARACTERISTIC IN ACCORDANCE WITH PART I.B.2.
***COMPOSITE SAMPLE SHALL BE 24-HOUR TIME PROPORTIONED.

PART I

A. DISCHARGE LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s)), described more fully in the permittee's application: **DSN001: Treated Process Wastewater and Contaminated Runoff from Coke Making Operations**

Such discharge shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations*(1)			Monitoring Requirements**	
	Daily Minimum	Daily Average	Daily Maximum	Measurement Frequency	Sample Type
Flow (MGD)	-----	-----	-----	1/day	Totalizer
pH	6.0 s.u.	-----	9.0 s.u.	1/day	Grab
Total Suspended Solids	-----	658 ppd	1269 ppd	3/week	Composite***
Oil and Grease	-----	54.5 ppd	164 ppd	1/week	Grab
Ammonia (N)	-----	83.2 ppd	283.4 ppd	3/week	Composite***
Cyanide	-----	18.2 ppd	33.3 ppd	1/week	Grab
Phenols (4AAP)	-----	0.167 ppd	0.333 ppd	1/week	Grab
Benzene	-----	-----	0.167 ppd	1/6 months	Grab
Naphthalene	-----	-----	0.167 ppd	1/6 months	Grab
Benzo(a)Pyrene	-----	-----	0.167 ppd	1/6 months	Grab
Production, Tons/day	n/a	-----	n/a	1/month	Calculated
Toxicity	See Part III.I.				

(1) The above limitations are based on a demonstrated monthly average production rate of 2,350 tons/day and are subject to permit conditions stated in Part III.J.

*SEE PART II., A., 4; PART II., A., 5; AND PART II., B., 3., AND PART III.J.
**SAMPLES COLLECTED TO COMPLY WITH THE MONITORING REQUIREMENTS SPECIFIED ABOVE SHALL BE COLLECTED AT THE FOLLOWING LOCATION: AT THE NEAREST ACCESSIBLE LOCATION JUST PRIOR TO DISCHARGE AND AFTER FINAL TREATMENT. SAMPLES TAKEN SHALL THEN BE ANALYZED FOR THE SPECIFIC PARAMETERS IN ACCORDANCE WITH PART I.B.2.
***COMPOSITE SAMPLES SHALL BE 24-HOUR TIME PROPORTIONED.

PART I

A. DISCHARGE LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s)), described more fully in the permittee's application: **DSN001: Treated Process Wastewater and Contaminated Runoff from Coke Making Operations**

Such discharge shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations*(1)			Monitoring Requirements**	
	Daily Minimum	Daily Average	Daily Maximum	Measurement Frequency	Sample Type
Flow (MGD)	-----	-----	-----	1/day	Totalizer
pH	6.0 s.u.	-----	9.0 s.u.	1/day	Grab
Total Suspended Solids	-----	714 ppd	1377 ppd	3/week	Composite***
Oil and Grease	-----	59.2 ppd	178 ppd	1/week	Grab
Ammonia (N)	-----	90.3 ppd	308 ppd	3/week	Composite***
Cyanide	-----	19.9 ppd	36.2 ppd	1/week	Grab
Phenols (4AAP)	-----	0.181 ppd	0.362 ppd	1/week	Grab
Benzene	-----	-----	0.181 ppd	1/6 months	Grab
Naphthalene	-----	-----	0.181 ppd	1/6 months	Grab
Benzo(a)Pyrene	-----	-----	0.181 ppd	1/6 months	Grab
Production, Tons/day	n/a	-----	n/a	1/month	Calculated
Toxicity	See Part III.I.				

(1) The above limitations are based on a demonstrated monthly average production rate of 2,550 tons/day and are subject to permit conditions stated in Part III.J.

*SEE PART II., A., 4; PART II., A., 5; AND PART II., B., 3., AND PART III.J.
**SAMPLES COLLECTED TO COMPLY WITH THE MONITORING REQUIREMENTS SPECIFIED ABOVE SHALL BE COLLECTED AT THE FOLLOWING LOCATION: AT THE NEAREST ACCESSIBLE LOCATION JUST PRIOR TO DISCHARGE AND AFTER FINAL TREATMENT. SAMPLES TAKEN SHALL THEN BE ANALYZED FOR THE SPECIFIC PARAMETERS IN ACCORDANCE WITH PART I.B.2.
***COMPOSITE SAMPLES SHALL BE 24-HOUR TIME PROPORTIONED.

PART I

A. DISCHARGE LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s)), described more fully in the permittee's application: **DSN001: Treated Process Wastewater and Contaminated Runoff from Coke Making Operations**

Such discharge shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations*(1)			Monitoring Requirements**	
	Daily Minimum	Daily Average	Daily Maximum	Measurement Frequency	Sample Type
Flow (MGD)	-----	-----	-----	1/day	Totalizer
pH	6.0 s.u.	-----	9.0 s.u.	1/day	Grab
Total Suspended Solids	-----	770 ppd	1485 ppd	3/week	Composite***
Oil and Grease	-----	63.8 ppd	192 ppd	1/week	Grab
Ammonia (N)	-----	97.4 ppd	332 ppd	3/week	Composite***
Cyanide	-----	21.4 ppd	39.0 ppd	1/week	Grab
Phenols (4AAP)	-----	0.195 ppd	0.390 ppd	1/week	Grab
Benzene	-----	-----	0.195 ppd	1/6 months	Grab
Naphthalene	-----	-----	0.195 ppd	1/6 months	Grab
Benzo(a)Pyrene	-----	-----	0.195 ppd	1/6 months	Grab
Production, Tons/day	2,750	-----	n/a	1/month	Calculated
Toxicity	See Part III.I.				

(1) The above limitations are based on a demonstrated monthly average production rate of 2,750 tons/day and are subject to permit conditions stated in Part III.J.

*SEE PART II., A., 4; PART II., A., 5; AND PART II., B., 3., AND PART III.J.
**SAMPLES COLLECTED TO COMPLY WITH THE MONITORING REQUIREMENTS SPECIFIED ABOVE SHALL BE COLLECTED AT THE FOLLOWING LOCATION: AT THE NEAREST ACCESSIBLE LOCATION JUST PRIOR TO DISCHARGE AND AFTER FINAL TREATMENT. SAMPLES TAKEN SHALL THEN BE ANALYZED FOR THE SPECIFIC PARAMETERS IN ACCORDANCE WITH PART I.B.2.
***COMPOSITE SAMPLES SHALL BE 24-HOUR TIME PROPORTIONED.

PART I

A. DISCHARGE LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s)), described more fully in the permittee's application: **DSN002: Stormwater Runoff from Coalyard**

Such discharge shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations*			Monitoring Requirements**	
	Daily Minimum	Daily Average	Daily Maximum	Measurement Frequency	Sample Type
Flow (MGD)	-----	-----	-----	1/discharge	Staff Gage
pH	6.0 s.u.	n/a	9.0 s.u.	1/discharge	Grab
Manganese, Total	-----	2.0 mg/l	4.0 mg/l	1/discharge	Grab
Iron, Total	-----	3.0 mg/l	6.0 mg/l	1/discharge	Grab
Total Suspended Solids	-----	35 mg/l	70 mg/l	1/discharge	Grab

*SEE PART II., A., 4; PART II;, A., 5; AND PART II., B.3.
**SAMPLES COLLECTED TO COMPLY WITH THE MONITORING REQUIREMENTS SPECIFIED ABOVE SHALL BE COLLECTED AT THE FOLLOWING LOCATION: AT THE NEAREST ACCESSIBLE LOCATION JUST PRIOR TO DISCHARGE AND AFTER FINAL TREATMENT. SAMPLES TAKEN SHALL THEN BE ANALYZED FOR EACH EFFLUENT CHARACTERISTIC IN ACCORDANCE WITH PART I.B.2.
***COMPOSITE SAMPLE SHALL CONSIST OF AT LEAST EIGHT (8) TIME-PROPORTIONED GRAB SAMPLES DURING PERIOD OF DISCHARGE OR 24 HOURS, WHICHEVER IS LESS.

PART I

A. DISCHARGE LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s)), described more fully in the permittee's application: DSN002: Stormwater Runoff from Coalyard

Such discharge shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations*			Monitoring Requirements**	
	Daily Minimum	Daily Maximum	Monthly Average	Measurement Frequency	Sample Type
Flow	-----	-----	-----	1/discharge	Staff Gage
pH	6.0 s.u.	9.0 s.u.	-----	1/discharge	Grab
Manganese, Total	-----	4.0 mg/l	2.0 mg/l	1/discharge	Grab
Iron, Total	-----	6.0 mg/l	3.0 mg/l	1/discharge	Grab
Total Suspended Solids	-----	70 mg/l	35 mg/l	1/discharge	Grab

14

*See Part II., A., 4; Part II., A., 5; and Part II., B., 3.
**Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Samples taken shall then be analyzed for the specific parameters in accordance with Part I.B.2.

B. MONITORING AND REPORTING

1. Representative Sampling

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge.

2. Test Procedures

Test procedures for the analysis of pollutants shall conform to guidelines published pursuant to Section 304(h) of the FWPCA, U.S.C. Section 1314(h).

3. Recording of Results

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

a. The facility name and location, point source number, date, time and exact place of sampling;

b. The name(s) of person(s) who obtained the samples or measurements;

c. The dates and times the analyses were performed;

d. The name(s) of the person(s) who performed the analyses;

e. The analytical techniques or methods used; and

f. The results of all required analyses.

4. Records Retention and Production

All records and information resulting from the monitoring activities required by this permit, including but not limited to all records of analyses performed and calibration and maintenance of instrumentation, copies of all reports required by this permit, records of all data used to complete the application for this permit, and all other records required to be maintained pursuant to the terms and conditions of this permit, the Federal Act and the State Act, shall be retained for a minimum of three (3) years after their creation, or longer if requested by the Director or his designee. In the case of litigation regarding the discharge of pollutants by the permittee, such records shall be retained until such litigation is resolved. Upon the written request of the Director or his designee, the permittee shall provide the Director with a copy of any record required to be retained by this paragraph.

5. Reporting

a. Monitoring results obtained during the previous (1) months(s) shall be summarized for each month on a Discharge Monitoring Report (DMR) Form approved by the Department, and submitted to the Director no later than the 28th day of the month following this monitoring period. The first report is due . If the permittee, using approved analytical methods as specified in Part I.,B.,2., monitors any discharge from a point source identified in Part I., A. of this permit more frequently than required by this permit, the results of such monitoring shall be included in the calculation and reporting of values on the DMR Form and the increased frequency shall be indicated on the DMR Form. In the event no discharge from a point source identified in Part I.,A. of this permit and described more fully in the permittee's application occurs during a monitoring period, the permitee shall report "No Discharge" for such period on the appropriate DMR Form.

b. All reports and forms required to be submitted by this permit, the AWPCA and the Department's rules and regulations, shall be signed by a "responsible official" of the permittee as defined in the Department's rules and regulations or a "duly authorized representative" of such official as defined in 40 C.F.R. Section 122.22(b) and shall bear the following certification:

> "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

c. All reports and forms required to be submitted by this permit, the AWPCA and the Department's rules and regulations, shall be addressed to:

Director
Alabama Department of Environmental Management
1751 Federal Drive
Montgomery, Alabama 36130
Attention: Water Division

6. Noncompliance Notification

a. If for any reason, the permittee's discharge (1) does not comply with any daily minimum or maximum discharge limitation for an effluent characteristic specified in Part I.,A. of this permit which is denoted by an "(X)", (2) threatens human health or welfare, fish or aquatic life, or water quality standards, (3) does not comply with an applicable toxic pollutant effluent standard or prohibition established under Section 307(a) of the FWPCA, 33 U.S.C. Section 1317(a), (4) contains a quantity of a hazardous substance which has been determined may be harmful to the public health or welfare under Section 311(b)(4) of the FWPCA, 33 U.S.C. Section 1321(b)(4), or (5) exceeds any discharge limitation for an effluent characteristic as a result of an unanticipated bypass or upset, the permittee shall orally report the occurrence and circumstances of such discharge to the Director within 24-hours after the permittee becomes aware of the occurrence of such discharge. In addition to the oral report, the permittee shall submit to the Director a written report as provided in c. below, no later than five (5) days after becoming aware of the occurrence of such discharge.

b. If for any reason, the permittee's discharge does not comply with any daily maximum or minimum discharge limitation specified in Part I., A. of this permit, the permittee shall submit to the Director a written report as provided in c. below, which report shall be submitted with the next Discharge Monitoring Report required to be submitted by Part I., B., 5. of this permit after becoming aware of the occurrence of such discharge.

c. Any written report required to be submitted to the Director by a. or b. shall include the following information:

1. A description of the discharge and cause of noncomplince;

2. The period of noncompliance, including exact dates and times or, if not corrected, the anticipated time the noncompliance is expected to continue; and

permit, for a period of at least three years from the date of the sample measurement, report or application. This period may be extended by request of the Director at any time. If litigation or other enforcement action, under the AWPCA and/or the FWPCA, is ongoing which involves any of the above records, the records shall be kept until the litigation is resolved. Upon the written request of the Director or his designee, the permittee shall provide the Director with a copy of any record required to be retained by this paragraph.

b. All records required to be kept for a period of three years shall be kept at the permitted facility or an alternate location approved by the Department in writing and shall be available for inspection.

5. Reporting

a. Monitoring results obtained during the previous monthly reporting period shall be summarized on a Discharge Monitoring Report (DMR) Form approved by the Department, and received by the Director no later than the 28th day of the month following this monitoring period. The first report is due May 28, 1989 . If the permittee, using approved analytical methods as specified in Part I.,B.,2., monitors any discharge from a point source identified in Part I., A. of this permit more frequently than required by this permit, the results of such monitoring shall be included in the calculation and reporting of values on the DMR Form and the increased frequency shall be indicated on the DMR Form. In the event no discharge from a point source identified in Part I.,A, of this permit and described more fully in the permittee's application occurs during a monitoring period, the permittee shall report "No Discharge" for such period on the appropriate DMR Form.

b. All reports and forms required to be submitted by this permit, the AWPCA and the Department's rules and regulations, shall be signed by "responsible official" of the permittee as defined in ADEM Admin. Code Rule 335-6-6-.09 or a "duly authorized representative" of such official as defined in ADEM Admin. Code Rule 335-6-6-.09 and shall bear the following certification:

> "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and

complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

c. All reports and forms required to be submitted by this permit, the AWPCA and the Department's rules and regulations, shall be addressed to:

Director
Alabama Department of Environmental Management
1751 Cong. W.L. Dickinson Drive
Montgomery, Alabama 36130
Attention: Industrial Branch, Water Division

6. Noncompliance Notification

a. If for any reason, the permittee's discharge (1) does not comply with any daily minimum or maximum discharge limitation for an effluent characteristic specified in Part I., A. of this permit which is denoted by an "(X)", (2) threatens human health or welfare, fish or aquatic life, or water quality standards, (3) does not comply with an applicable toxic pollutant effluent standard or prohibition established under Section 307(a) of the FWPCA, 33 U.S.C. Section 1317(a), (4) contains a quantity of a hazardous substance which has been determined may be harmful to public health or welfare under Section 311(b)(4) of the FWPCA, 33 U.S.C. Section 1321(b)(4), or (5) exceeds any discharge limitation for an effluent characteristic as a result of an unanticipated bypass or upset, the permittee shall orally report the occurrence and circumstances of such discharge to the Director within 24-hours after the permittee becomes aware of the occurrence of such discharge. In addition to the oral report, the permittee shall submit to the Director a written report as provided in c. below, no later than five (5) days after becoming aware of the occurrence of such discharge.

b. If for any reason, the permittee's discharge does not comply with any daily maximum or minimum discharge limitation specified in Part I., A. of this permit, the permittee shall submit to the Director a written report as provided in c. below, which report shall be submitted with the next Discharge Monitoring Report required to be submitted by Part I., B., 5. of this permit after becoming aware of the occurrence of such discharge.

c. Any written report required to be submitted to the Director by a. or b. shall include the following information:

3. A description of the steps taken and/or being taken to reduce or eliminate the noncomplying discharge and to prevent its recurrence.

7. Reduction, Suspension, or Termination of Monitoring and/or Reporting

a. The Director may, with respect to any point source identified in Part I., A. of this permit, authorize the permittee to reduce, suspend or terminate the monitoring and/or reporting required by this permit upon the submission of a written request for such reduction, suspension or termination by the permittee, supported by sufficient data which demonstrates to the satisfaction of the Director that the discharge from such point source will continuously meet the discharge limitations specified in Part I., A. of this permit without treatment.

b. It remains the responsibility of the permittee to comply with the monitoring and reporting requirements of this permit until written authorization to reduce, suspend or terminate such monitoring and/or reporting is received by the permittee from the Director.

C. SCHEDULE OF COMPLIANCE

1. The permittee shall achieve compliance with the discharge limitations specified in Part I., A. in accordance with the following schedule:

Operational Level Attained - - - - - Effective Date of Permit

2. No later than 14 calendar days following a date identified in the above schedule of compliance, the permittee shall submit either a report of progress or, in the case of specific actions being required by identified dates, a written notice of compliance or noncompliance. In the latter case, the notice shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.

D. TERMINATION OF DISCHARGE

The permittee shall notify the Director, in writing, when all discharges from any point source(s) identified in Part I., A. of this permit have permanently ceased.

PART II

A. MANAGEMENT REQUIREMENTS

1. Facilities Operation

The permittee shall at all times maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this permit. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the terms and conditions of this permit.

2. Best Management Practices

a. Dilution water shall not be added to achieve compliance with discharge limitations except when the Director or his designee has granted prior written authorization.

b. The permittee shall prepare, implement, and maintain a Spill Prevention, Control and Countermeasures (SPCC) Plan in accordance with 40 C.F.R. Section 112.1-.7 if required thereby.

c. The permittee shall prepare, submit for approval and implement a Best Management Practices (BMP) Plan for containment of any or all process liquids or solids, in a manner such that these materials do not present a significant potential for discharge, if so required by the Director or his designee.

3. Adverse Impact

The permittee shall promptly take all reasonable steps to minimize any adverse impact to waters resulting from noncompliance with any discharge limitation specified in Part I., A. of this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

4. Bypass

a. Any bypass is prohibited except as provided in b. and c. below:

b. A bypass is not prohibited if:

1. It does not cause any discharge limitation specified in Part I., A. of this permit to be exceeded; and

2. It is necessary for essential maintenance of a treatment or control facility or system to assure efficient operation of such facility or system.

c. A bypass is not prohibited and need not meet the discharge limitations specified in Part I., A. of this permit if:

1. It is unavoidable to prevent loss of life, personal injury, or severe property damage;

2. There are no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime; and

3. The permittee submits a written request for authorization to bypass to the Director at least ten (10) days prior to the anticipated bypass (if possible), the permittee is granted such authorization, and the permittee complies with any conditions imposed by the Director to minimize any adverse impact to waters resulting from the bypass.

d. The permittee has the burden of establishing that each of the conditions of b. or c. have been met to qualify for an exception to the general prohibition against bypassing contained in a. and an exemption, where applicable, from the discharge limitations specified in Part I., A. of this permit.

5. Upset

a. A discharge which results from an upset need not meet the discharge limitations specified in Part I., A., of this permit if:

1. No later than 24-hours after becoming aware of the occurrence of the upset, the permittee orally reports the occurrence and circumstances of the upset to the Director or his designee; and

2. No later than five (5) days after becoming aware of the occurrence of the upset, the permittee furnishes the Director with evidence, including properly signed, contemporaneous operating logs, or other relevant evidence, demonstrating that (i) an upset occurred; (ii) the permittee can identify the specific cause(s) of the upset; (iii) the permittee's facility was being properly operated at the time of the upset; and (iv) the permittee promptly took all reasonable steps to minimize any adverse impact to waters resulting from the upset.

b. The permittee has the burden of establishing that each of the conditions of a. have been met to qualify for an exemption from the discharge limitations specified in Part I., A. of this permit.

6. Removed Substances

Solids, sludges, filter backwash, or any other pollutant or other waste removed in the course of treatment or control of wastewaters shall be disposed of in a manner that complies with all applicable Department Rules and Regulations.

7. Loss or Failure of Treatment Facilities

Upon the loss or failure of any treatment facility, including but not limited to the loss or failure of the primary source of power of the treatment facility, the permittee shall, where necessary to maintain compliance with the discharge limitations specified in Part I., A. of this permit, or any other terms or conditions of this permit, cease, reduce, or otherwise control production and/or all discharges until treatment is restored.

B. RESPONSIBILITIES

1. Duty to Comply

The permittee shall comply with all terms and conditions of this permit. All discharges from point sources identified in Part I., A. of this permit shall be consistent with the terms and conditions of this permit. Except as otherwise provided, any discharge more frequently than or at a level in excess of the discharge limitations specified in Part I., A. of this permit and any failure to comply with any other term or condition of this permit shall constitute a violation of this permit.

Change in Discharge

a. Any anticipated facility expansions, production increases, process modifications or treatment facility modificatons which would cause any discharge limitation specified in Part I., A. of this permit to be exceeded or otherwise not be authorized by this permit, shall be reported to the Director by submission of a new permit application and, when required, an engineering report and preliminary engineering plans and specifications prior to effecting such expansion, increase or modification. Such new or increased discharge is not authorized unless and until the Director issues a new or modified permit authorizing such discharge.

b. The permittee shall notify the Director as soon as it knows or has reason to believe that it has begun or expects to begin to discharge any pollutant listed as a toxic pollutant pursuant to Section 307(a) of the FWPCA, 33 U.S.C. Section 1317(a), any substance designated as a hazardous substance pursuant to Section 311(b)(2), 33 U.S.C. Section 1321(b)(2), any waste listed as a hazardous waste pursuant to Code of Alabama 1975, Section 22-30-10, which is not subject to any discharge limitation specified in Part I., A. of this permit and was not reported in the permittee's application, or was reported in the permittee's application in concentrations or mass rates lower than that which the permittee has reason to believe has begun to be discharged or expects to begin to discharge.

Compliance with Toxic Pollutant Effluent Standard or Prohibition

If any applicable effluent standard or prohibition including any schedule of compliance specified in such effluent standard or prohibition) is established under Section 307(a) of the FWPCA, 33 U.S.C. Section 1317(a), for a toxic pollutant discharged by the permittee and such standard or prohibition is more stringent than any discharge limitation on the pollutant specified in Part I., A. of this permit, or controls a pollutant not limited in Part I., A. of this permit, this permit shall be modified to conform to the toxic pollutant effluent standard or prohibition and the permittee shall be notified of such modification. If this permit has not been modified to conform to the toxic pollutant effluent standard or prohibition before the effective date of such standard or prohibition, the authorization to discharge in this permit

d. To have access to and sample any discharge resulting directly or indirectly from activities or operations of the permittee.

6. Updating Information

a. The permittee shall inform the Director of any change in the permittee's mailing address or telephone number or in the permittee's designation of a facility contact or office(s) having the authority and responsibility to prevent and abate violations of the AWPCA, the Department's rules and regulations and the terms and conditions of this permit, in writing, no later than ten (10) days after such change. Upon request of the Director or his designee, the permittee shall furnish the Director with an update of any information provided in the permit application.

b. If the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Director, it shall promptly submit such facts or information with a written explanation for the mistake and/or omission.

7. Permit Modification, Suspension and Revocation

a. This permit may be modified, suspended or revoked, in whole or in part, during its term for cause, including but not limited to, the following:

1. Violation of any term or condition of this permit;

2. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts;

3. Materially false or inaccurate statements or information in the permit application or the permit;

4. A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge;

5. Errors in calculation of discharge limitations or typographical or clerical errors; or

6. The permittee's discharge threatens human life or welfare.

b. The filing of a request by the permittee for modification, suspension or revocation of this permit, in whole or in part, does not stay any permit term or condition.

8. Duty to Provide Information

The permittee shall furnish to the Director, within a reasonable time, any information which the Director or his designee may request to determine whether cause exists for modifying, suspending, or revoking this permit, in whole or in part, or to determine compliance with this permit.

9. Transfer of Permit

This permit may not be transferred without notice to the Director and subsequent modification or revocation and reissuance of the permit. In the case of a change in ownership or control of the permittee's premises only, notice to the Director is required at least 30 days prior to the change. In the case of a change in ownership or control of the permittee's premises accompanied by a change or proposed change in effluent characteristics, notice to the Director is required at least 180 days prior to the change. Whenever the Director is notified of a change in ownership or control, he may require the submission of a new permit application.

10. Permit Continuation

If the permittee intends to continue to discharge beyond the expiration date of this permit, the permittee shall file a written request for reissuance of this permit at least 180 days prior to its expiration. The Director may require the submission of a new permit application.

11. Groundwater

This permit does not authorize any discharge to groundwater. Should a threat of groundwater contamination occur, groundwater monitoring may be required to properly assess the degree of the problem and the Director may require that the permittee undertake measures to abate any such discharge and/or contamination.

PART III

A. CIVIL AND CRIMINAL LIABILITY

Except as provided in Part II., A., 4. (Bypass) and Part II., A., 5. (Upset), nothing in this permit shall be construed to relieve

2. No later than 14 calendar days following a date identified in the above schedule of compliance, the permittee shall submit either a report of progress or, in the case of specific actions being required by identified dates, a written notice of compliance or noncompliance. In the latter case, the notice shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.

D. TERMINATION OF DISCHARGE

The permittee shall notify the Director, in writing, when all discharges from any point source(s) identified in Part I., A. of this permit have permanently ceased. This notification shall serve as sufficient cause for instituting procedures for termination of the permit.

PART II

A. MANAGEMENT REQUIREMENTS

1. Facilities Operation and Management

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of the permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities only when necessary to achieve compliance with the conditions of the permit.

2. Best Management Practices

a. Dilution water shall not be added to achieve compliance with discharge limitations except when the Director or his designee has granted prior written authorization.

b. The permittee shall prepare, implement, and maintain a Spill Prevention, Control and Countermeasures (SPCC) Plan in accordance with 40 C.F.R. Section 112.1-.7 if required thereby.

c. The permittee shall prepare, submit for approval and implement a Best Management Practices (BMP) Plan for containment of any or all process liquids or solids, in a manner such that these materials do not present a significant potential for discharge, if so required by the Director or his designee. When submitted and approved, the BMP Plan shall become a part of this permit and all requirements of the BMP Plan shall become requirements of this permit.

1. No later than 24-hours after becoming aware of the occurrence of the upset, the permittee orally reports the occurrence and circumstances of the upset to the Director or his designee; and

2. No later than five (5) days after becoming aware of the occurrence of the upset, the permittee furnishes the Director with evidence, including properly signed, contemporaneous operating logs, or other relevant evidence, demonstrating that (i) an upset occurred; (ii) the permittee can identify the specific cause(s) of the upset; (iii) the permittee's facility was being properly operated at the time of the upset; and (iv) the permittee promptly took all reasonable steps to minimize any adverse impact to waters resulting from the upset.

b. The permittee has the burden of establishing that each of the conditions of a. have been met to qualify for an exemption from the discharge limitations specified in Part I., A. of this permit.

6. Removed Substances

Solids, sludges, filter backwash, or any other pollutant or other waste removed in the course of treatment or control of wastewaters shall be disposed of in a manner that complies with all applicable Department Rules and Regulations.

7. Loss or Failure of Treatment Facilities

Upon the loss or failure of any treatment facility, including but not limited to the loss or failure of the primary source of power of the treatment facility, the permittee shall, where necessary to maintain compliance with the discharge limitations specified in Part I., A. of this permit, or any other terms or conditions of this permit, cease, reduce, or otherwise control production and/or all discharges until treatment is restored.

B. RESPONSIBILITIES

1. Duty to Comply

a. The permittee must comply with all conditions of the permit. Any permit noncompliance constitutes a violation of the AWPCA and the FWPCA and is grounds for enforcement action, for permit termination, revocation and reissuance, suspension, modification; or denial of a permit renewal application.

b. The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the FWPCA for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

(b) one milligram per liter for antimony;

(c) ten times the maximum concentration value reported for that pollutant in the permit application.

3. Compliance with Toxic Pollutant Effluent Standard or Prohibition

If any applicable effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under Section 307(a) of the FWPCA, 33 U.S.C. Section 1317(a), for a toxic pollutant discharged by the permittee and such standard or prohibition is more stringent than any discharge limitation on the pollutant specified in Part I., A. of this permit, or controls a pollutant not limited in Part I., A. of this permit, this permit shall be modified to conform to the toxic pollutant effluent standard or prohibition and the permittee shall be notified of such modification. If this permit has not been modified to conform to the toxic pollutant effluent standard or prohibition before the effective date of such standard or prohibition, the authorization to discharge in this permit shall be void to the extent that any discharge limitation on such pollutant in Part I., A. of this permit exceeds or is inconsistent with the established toxic pollutant effluent standard or prohibition.

4. Compliance with Water Quality Standards and Other Provisions

a. On the basis of the permittee's application, plans, or other available information, the Department has determined that compliance with the terms and conditions of this permit will assure compliance with the applicable water quality standards.

b. Compliance with permit terms and conditions notwithstanding, if the permittee's discharge(s) from point sources identified in Part I., A. of this permit cause or contribute to a condition in contravention of State water quality standards, the Department may require abatement action to be taken by the permittee in emergency situations or modify the permit pursuant to the Department's rules and regulations, or both.

c. If the Department determines, on the basis of a notice provided pursuant to Part II., B., 2. of this permit or any investigation, inspection or sampling, that a modification of this permit is necessary to assure maintenance of water quality standards or compliance with other provisions of the State or FWPCA, the Department may require such modification and, in cases of emergency, the Director may prohibit the act until the permit has been modified.

5. Right of Entry and Inspection

The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law to:

(5) Errors in calculation of discharge limitations or typographical or clerical errors;

(6) The permittee's discharge threatens human life or welfare;

(7) Permanent closure of the facility generating the wastewater permitted to be discharged by this permit or permanent cessation of wastewater discharge; or

(8) Any other cause allowed by the ADEM Administrative Code, Chapter 335-6-6.

b. The filing of a request by the permittee for modification, suspension or revocation of this permit, in whole or in part, does not stay any permit term or condition.

8. Duty to Provide Information

The permittee shall furnish to the Director, within a reasonable time, any information which the Director or his designee may request to determine whether cause exists for modifying, suspending, or revoking this permit, in whole or in part, or to determine compliance with this permit.

9. Transfer of Permit

This permit may not be transferred or the name of the permittee changed without notice to the Director and subsequent modification or revocation and reissuance of the permit. In the case of a change in name, ownership or control of the permittee's premises only, a request for permit modification in a format acceptable to the Director is required at least 30 days prior to the change. In the case of a change in name, ownership or control of the permittee's premises accompanied by a change or proposed change in effluent characteristics, a complete permit application is required to be submitted to the Director at least 180 days prior to the change. Whenever the Director is notified of a change in name, ownership or control, he may require the submission of a new permit application.

10. Duty to Reapply

a. If the permittee intends to continue to discharge beyond the expiration date of this permit, the permittee shall file a complete permit application for reissuance of this permit at least 180 days prior to its expiration.

b. Failure of the permittee to apply for reissuance at least 180 days prior to permit expiration will void the automatic continuation of the expiring permit provided by ADEM Administrative Code Rule 335-6-6-.06.

the permittee of civil or criminal liability under the AWPCA or FWPCA for noncompliance with any term or condition of this permit.

B. OIL AND HAZARDOUS SUBSTANCE LIABILITY

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities or penalties to which the permittee is or may be subject under Section 311 of the FWPCA, 33 U.S.C. Section 1321.

C. PROPERTY AND OTHER RIGHTS

This permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to persons or property or invasion of other private rights, or any infringement of Federal, State or local laws or regulations.

D. AVAILABILITY OF REPORTS

Except for data determined to be confidential under Code of Alabama 1975, Section 22-22-9(c), all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Department. Effluent data shall not be considered confidential. Knowingly making any false statement in any such report may result in the imposition of criminal penalties as provided for in Section 309 of the FWPCA, 33 U.S.C. Section 1319, and Code of Alabama 1975, Section 22-22-14.

E. DEFINITIONS

1. Bypass - means the intentional diversion of waste streams from any portion of a treatment facility.

2. Daily average - means the arithmetic mean value of all sample results obtained during a calendar month.

3. Daily maximum - means the highest value of any individual sample result obtained during a day.

4. Daily minimum - means the lowest value of any individual sample result obtained during a day.

5. Day - means any consecutive 24-hour period.

6. Department - means the Alabama Department of Environmental Management.

7. Director - means the Director of the Department.

8. Discharge - means "the addition, introduction, leaking, spilling or emitting of any sewage, industrial waste, pollutant or other waste into waters of the state." Code of Alabama 1975, Section 22-22-1(b)(9).

9. Point Source - means "any discernable, confined and discrete conveyance, including but not limited to any pipe, channel, ditch, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, . . . from which pollutants are or may be discharged." Section 502(14) of the FWPCA, 33 U.S.C. Section 1362(14).

10. Pollutant - includes for purposes of this permit, but is not limited to, those pollutants specified in Code of Alabama 1975, Section 22-22-1(b)(3) and those effluent characteristics, excluding flow, specified in Part I., A., of this permit.

11. Severe Property Damage - means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

12. Upset - means an exceptional incident in which there is an unintentional and temporary noncompliance with technology-based permit discharge limitations because of factors beyond the control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate facilities, lack of preventive maintenance, or careless or improper operation.

13. Waters - means "all waters of any river, stream, watercourse, pond, lake, coastal, ground or surface water, wholly or partially within the State, natural or artifical. This does not include waters which are entirely confined and retained completely upon the property of a single individual, partnership or corporation unless such waters are used in interstate commerce." Code of Alabama 1975, Section 22-22-1(b)(3). Waters" include all navigable waters" as defined in Section 502(7) of the FWPCA, 22 U.S.C. Section 1362(7), which are within the State of Alabama.

14. Week - means the period beginning at twelve midnight Saturday and ending at twelve midnight the following Saturday.

F. SEVERABILITY

The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

2. False Statements

Any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished as provided by applicable State and Federal law.

3. Permit Enforcement

a. Any NPDES permit issued or reissued by the Department is a permit for the purpose of the AWPCA and the FWPCA as such any terms, conditions, or limitations of the permit are enforceable under State and Federal law.

b. Any person required to have a NPDES permit pursuant to this Chapter and who discharges pollutants without said permit, who violates the conditions of said permit, who discharges pollutants in a manner not authorized by the permit, or who violates this Chapter or applicable orders of the Department or any applicable rule or standard under this Division, is subject to any one or combination of the following enforcement actions under the AWPCA.

(1) An administrative order requiring abatement compliance, mitigation, cessation, clean-up, and/or penalties;

(2) An action for damages;

(3) An action for injunctive relief; or

(4) An action for penalties.

c. Any order issued by the Department pursuant to the AWPCA requiring compliance with the AWPCA, its implementing rules, or an NPDES Permit shall specify a reasonable time within which noncompliance must cease. In appropriate cases a reasonable time may be immediately. Reasonableness shall be determined based upon the severity of the violation and the complexity and availability of the measures necessary to correct this violation.

d. If the permittee is not in compliance with the conditions of an expiring or expired permit the Director may choose to do any or all of the following provided the permittee has made a timely application for reissuance of the permit.

(1) initiate enforcement action based upon the permit which has been continued;

2. Average weekly discharge limitation - means the highest allowable average of "daily discharges" over a calendar week, calculated as the sum of all "daily discharges" measured during a calendar week divided by the number of "daily discharges" measured during that week (zero discharge days shall not be included in the number of "daily discharges" measured).

3. Bypass - means the intentional diversion of waste streams from any portion of a treatment facility.

4. Daily discharge - means the discharge of a pollutant measured during any consecutive 24 hour period in accordance with the sample type and analytical methodology specified by the discharge permit.

5. Daily maximum - means the highest value of any individual sample result obtained during a day.

6. Daily minimum - means the lowest value of any individual sample result obtained during a day.

7. Day - means any consecutive 24-hour period.

8. Department - means the Alabama Department of Environmental Management.

9. Director - means the Director of the Department.

10. Discharge - means "[t]he addition, introduction, leaking, spilling or emitting of any sewage, industrial waste, pollutant or other waste into waters of the state." Code of Alabama 1975, Section 22-22-1(b)(9).

11. Discharge monitoring report (DMR) - means the form approved by the Director to accomplish reporting requirements of an NPDES permit.

12. Permit application - means forms and additional information that is required by ADEM Administrative Code Rule 335-6-6-.08 and applicable permit fees.

13. Point Source - means "any discernible, confined and discrete conveyance, including but not limited to any pipe, channel, ditch, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, . . . from which pollutants are or may be discharged." Section 502(14) of the FWPCA, 33 U.S.C. Section 1362(14).

14. Pollutant - includes for purposes of this permit, but is not limited to, those pollutants specified in Code of Alabama 1975, Section 22-22-1(b)(3) and those effluent characteristics, excluding flow, specified in Part I., A., of this permit.

G. COOLING WATER ADDITIVES

1. The company shall notify the Director, ADEM, in writing not later than sixty (60) days prior to instituting use of any additional biocide corrosion inhibitor or chemical additive used in any cooling system discharge regulated by this permit other than chlorine or those previously reported to the Alabama Department of Environmental Management. Such notification shall include:

   a. name and general composition of biocide or chemical,
   b. 96-hour median tolerance limit data for organisms representative of the biota of the waterway into which the discharge will ultimately reach,
   c. quantities to be used,
   d. frequencies of use,
   e. proposed discharge concentrations, and
   f. EPA registration number, if applicable.

2. The use of biocide containing tributyl tin, tributyl tin oxide, zinc, chromium or related compounds in cooling system discharge(s) regulated by this permit is prohibited.

H. This permit shall be reopened and limits herein modified should the results of water quality modelling conducted by ADEM indicate water quality standards could be contravened by the limits contained herein.

ADEM

ALABAMA
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Guy Hunt
Governor

Leigh Pegues, Director

1751 Federal Drive
Montgomery, AL
36130
205/271-7700

Field Offices:

Unit 806, Building 8
225 Oxmoor Circle
Birmingham, AL
35209
205/942-6168

P.O. Box 953
Decatur, AL
35602
205/353-1713

2204 Perimeter Road
Mobile, AL
36615
205/479-2336

December 19, 1988

Mr. Jim Cleghorn
Technical Director
ABC Coke Division
Drummond Company, Inc.
P O Box 10246
Birmingham, AL 35202

Dear Mr. Cleghorn:

RE: NPDES Revised Draft Permit Number AL0003417

Please replace Page III-5 of the above referenced draft permit with the attached page. The attached Page III-5 corrects an error in paragraph 4. to make it consistent with paragraphs 3. and 5.b.

Sincerely,

Jim Phillips
Environmental Engineer
Industrial Branch
Water Division

JWP/jd

Enclosure

cc: Roosevelt Childress, w/enc.

DRAFT

I. EFFLUENT TOXICITY LIMITATIONS AND BIOMONITORING REQUIREMENTS

1. The permittee shall perform 24 hour acute toxicity screening tests using fathead minnows (Pimephales promelas) on DSN001 effluent in accordance with Section 8 of the current edition of "EPA Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms".

2. The above biomonitoring tests will begin 60 days after the effective date of this permit, and be performed once per month through the expiration date of this permit. Biomonitoring results obtained during each monthly period shall be summarized on the appropriate report form approved by the Department, and submitted no later than 28 days following the period.

3. A grab sample shall be obtained for use in the above biomonitoring test. Holding time for the grab sample shall not exceed 72 hours. The samples shall be diluted using an appropriate control water, to the Instream Waste Concentration (IWC) of 4% DSN001 effluent. An appropriate control water shall be selected by the permittee but must be approved by the Department prior to use in the above testing.

4. If more than 10% of the test organisms die in the control water during the test, results shall not be reported, and the test shall be rerun unless the 4% effluent concentration has less than 10% mortality of test organisms.

5. Should the results of any test required indicate a mortality of greater than 10% the permittee shall perform that test at an accelerated frequency in accordance with the following requirements.

   a. These additional biomonitoring tests shall begin within 10 days after failure of the scheduled test, and shall be performed 1 per week for 4 weeks. Biomonitoring test results obtained during each month shall be summarized on the appropriate report form approved by the Department, and submitted no later than 28 days after the month in which the tests were performed.

   b. After the test period is complete and all test data is received, the Department will review the data to determine if the DSN001 effluent is acutely toxic. If more than 10% of the test organisms die in the control water during the test, results shall not be reported, and the test shall be rerun, unless the 4% effluent concentration has less than 10% mortality of test organisms.

I. EFFLUENT TOXICITY LIMITATIONS AND BIOMONITORING REQUIREMENTS

1. The permittee shall perform 24 hour acute toxicity screening tests using fathead minnows (Pimephales promelas) on DSN001 effluent in accordance with Section 8 of the current edition of "EPA Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms".

2. The above biomonitoring tests will begin 60 days after the effective date of this permit, and be performed once per month through the expiration date of this permit. Biomonitoring results obtained during each monthly period shall be summarized on the appropriate report form approved by the Department, and submitted no later than 28 days following the period.

3. A grab sample shall be obtained for use in the above biomonitoring test. Holding time for the grab sample shall not exceed 72 hours. The samples shall be diluted using an appropriate control water, to the Instream Waste Concentration (IWC) of 4% DSN001 effluent. An appropriate control water shall be selected by the permittee but must be approved by the Department prior to use in the above testing.

4. If more than 10% of the test organisms die in the control water during the test, results shall not be reported, and the test shall be rerun unless the 6.1% effluent concentration has less than 10% mortality of test organisms.

5. Should the results of any test required indicate a mortality of greater than 10% the permittee shall perform that test at an accelerated frequency in accordance with the following requirements.

   a. These additional biomonitoring tests shall begin within 10 days after failure of the scheduled test, and shall be performed 1 per week for 4 weeks. Biomonitoring test results obtained during each month shall be summarized on the appropriate report form approved by the Department, and submitted no later than 28 days after the month in which the tests were performed.

   b. After the test period is complete and all test data is received, the Department will review the data to determine if the DSN001 effluent is acutely toxic. If more than 10% of the test organisms die in the control water during the test, results shall not be reported, and the test shall be rerun, unless the 4% effluent concentration has less than 10% mortality of test organisms.

6. If the Department determines the DSN001 effluent to be acutely toxic at the IWC, the following will be required:

   a. A Toxicity Reduction Evaluation (TRE) shall be required to be submitted for review by the Department within 45 days after the permittee receives notice that the DSN001 effluent is considered toxic. Any subsequent corrected TREs shall be submitted within 20 days after Department comment, and shall address all comments by the Department.

   b. Implementation of the TRE shall be completed in accordance with the approved schedule contained in the TRE. Accelerated biomonitoring tests as discussed in item 5. above will not be required during the period of TRE preparation.

7. Definitions

   a. Instream Waste Concentration (IWC) is the actual concentration of effluent after mixing in the receiving stream during a 7-day 10-year low flow period.

   b. Toxicity Reduction Evaluation (TRE) consists of a study conducted to determine what control options are effective for complying with effluent toxicity limitations, development of a plan for attaining compliance utilizing the most effective control options and includes a schedule for implementing this plan.

PART III.J. Alternate Production Level

1. The permittee is required to notify the Director at least two business days prior to a month in which the permittee expects to operate at a level higher than the lowest production level (2,150 tons/day) identified in the permit. The notice shall specify the anticipated level and the period during which the permittee expects to operate at the alternate level. If the notice covers more than one month, the notice shall specify the reasons for the anticipated production level increase. New notice of discharge at alternate levels is required to cover a period or production level not covered by prior notice or, if during two consecutive months otherwise covered by a notice, the production level at the permitted facility does not in fact meet the higher level designated in the notice.

2. The permittee shall comply with the limitations, standards, or prohibitions that correspond to the lowest level of production specified in the permit, unless the permittee has notified the Director under paragraph 1. of this section, in which case the permittee shall comply with the lower of the actual level of production during each month or the level specified in the notice.

3. The permittee shall submit with the DMR the level of production that actually occurred during each month and the limitations, standards, or prohibitions applicable to that level of production.

A. EFFLUENT TOXICITY LIMITATIONS AND BIOMONITORING REQUIREMENTS

1. The permittee shall perform 24 hour acute toxicity screening tests using fathead minnows (Pimephales promelas) on DSN001 effluent in accordance with Section 8 of the current edition of "EPA Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms".

2. The above biomonitoring tests will begin 60 days after the effective date of this permit, and be performed once per month through the expiration date of this permit. Biomonitoring results obtained during each monthly period shall be summarized on the appropriate report form approved by the Department, and submitted no later than 28 days following the period.

3. A grab sample shall be obtained for use in the above biomonitoring test. Holding time for the grab sample shall not exceed 72 hours. The samples shall be diluted using an appropriate control water, to the Instream Waste Concentration (IWC) of 4% DSN001 effluent. An appropriate control water shall be selected by the permittee but must be approved by the Department prior to use in the above testing.

4. If more than 10% of the test organisms die in the control water during the test, results shall not be reported, and the test shall be rerun unless the 4% effluent concentration has less than 10% mortality of test organisms.

5. Should the results of any test required indicate a mortality of greater than 10% the permittee shall perform that test at an accelerated frequency in accordance with the following requirements.

   a. These additional biomonitoring tests shall begin within 10 days after failure of the scheduled test, and shall be performed 1 per week for 4 weeks. Biomonitoring test results obtained during each month shall be summarized on the appropriate report form approved by the Department, and submitted no later than 28 days after the month in which the tests were performed.

   b. After the test period is complete and all test data is received, the Department will review the data to determine if the DSN001 effluent is acutely toxic. If more than 10% of the test organisms die in the control water during the test, results shall not be reported, and the test shall be rerun, unless the 4% effluent concentration has less than 10% mortality of test organisms.

6. If the Department determines the DSN001 effluent to be acutely toxic at the IWC, the following will be required:

   a. A Toxicity Reduction Evaluation (TRE) shall be required to be submitted for review by the Department within 45 days after the permittee receives notice that the DSN001 effluent is considered toxic. Any subsequent corrected TREs shall be submitted within 20 days after Department comment, and shall address all comments by the Department.

   b. Implementation of the TRE shall be completed in accordance with the approved schedule contained in the TRE. Accelerated biomonitoring tests as discussed in item 5. above will not be required during the period of TRE preparation.

7. Definitions

   a. Instream Waste Concentration (IWC) is the actual concentration of effluent after mixing in the receiving stream during a 7-day 10-year low flow period.

   b. Toxicity Reduction Evaluation (TRE) consists of a study conducted to determine what control options are effective for complying with effluent toxicity limitations, development of a plan for attaining compliance utilizing the most effective control options and includes a schedule for implementing this plan.

B. Alternate Production Level

1. The permittee is required to notify the Director at least two business days prior to a month in which the permittee expects to operate at a level higher than the lowest production level (2,150 tons/day) identified in the permit. The notice shall specify the anticipated level and the period during which the permittee expects to operate at the alternate level. If the notice covers more than one month, the notice shall specify the reasons for the anticipated production level increase. New notice of discharge at alternate levels is required to cover a period or production level not covered by prior notice or, if during two consecutive months otherwise covered by a notice, the production level at the permitted facility does not in fact meet the higher level designated in the notice.

2. The permittee shall comply with the limitations, standards, or prohibitions that correspond to the lowest level of production specified in the permit, unless the permittee has notified the Director under paragraph 1. of this section, in which case the permittee shall comply with the lower of the actual level of production during each month or the level specified in the notice.

3. The permittee shall submit with the DMR the level of production that actually occurred during each month and the limitations, standards, or prohibitions applicable to that level of production.

ADEM DISCHARGE MONITORING REPORT

☐ MONTHLY

MONTH: _____ , 19 _____

COMPANY: ABC Coke Division
Drummond Co., Inc.

LOCATION: Tarrant, AL

NPDES NO. 0003417

DSN002

PARAM	Flow	pH	Mn	Fe,T	TSS												
AVG	--	6.0	2.0	3.0	35												
MAX	--	9.0	4.0	6.0	70												
FREQ	1/disc	1/isc	1/disc	1/disc	1/disc												
UNITS	MGD	s.u.	mg/l	mg/l	mg/l												
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I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature of Responsible Official _____ *Date:* _____

ADEM FORM 261 (B) 1/88

ADEM DISCHARGE MONITORING REPORT

☐ MONTHLY

MONTH: _____ , 19 ____

COMPANY: ABC Coke Division
Drummond Co., Inc.

LOCATION: Tarrant, AL

NPDES NO. 0003417

DSN001

Production rate 2,750 tons/day

PARAM	Flow	pH	TSS	O&G	NH3	Cn	PHE	Benz	Naph	B(a)P	Prod	Tox					
AVG	--	6.0	770	63.8	97.4	21.4	0.195	--	--	--	--						
MAX	--	9.0	1485	192	332	39.0	0.390	0.195	0.195	0.195	n/a						
FREQ	1/day	1/day	3/wk	1/wk	3/wk	1/wk	1/wk	1/6 mo	1/6 mo	1/6 mo	1/mo						
UNITS	MGD	s.u.	ppd	ppd	ppd	ppd	ppd	ppd	ppd	ppd							
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MAX																	

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Signature of Responsible Official

Date

ADEM FORM 361

ADEM DISCHARGE MONITORING REPORT

☐ MONTHLY

MONTH: _____, 19 ____

COMPANY: ABC Coke Division
Drummond Co., Inc.

LOCATION: Tarrant, AL

NPDES NO. 0003417

DSN001

Production rate 2,550 tons/day

PARAM	Flow	pH	TSS	O&G	NH3	Cn	PHE	Benz	Nph	B(a)P	Prod	Tox					
AVG	--	6.0	714	59.2	90.3	19.9	0.181	--	--	--	--						
MAX	--	9.0	1377	178	308	36.2	0.362	0.181	0.181	0.181	n/a						
FREQ	1/day	1/day	3/wk	1/wk	3/wk	1/wk	1/wk	1/6 mo	1/6 mo	1/6 mo	1/mo						
UNITS	MGD	s.u.	ppd	ppd	ppd	ppd	ppd	ppd	ppd	ppd							
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Signature of Responsible Official

Date:

ADEM FORM 361 (R)

ADEM DISCHARGE MONITORING REPORT

☐ MONTHLY

MONTH: _____, 19 ____

COMPANY: ABC Coke Division
Drummond Co., Inc.

LOCATION: Tarrant, AL

NPDES NO. 0003417

DSN001

Production rate 2,350 tons/day

PARAM	Flow	pH	TSS	O&G	NH3	Cn	PHE	Benz	Naph	B(a)P	Prod	Tox					
AVG	--	6.0	658	54.5	83.2	18.2	0.167	--	--	--	--						
MAX	--	9.0	1269	164	283.4	33.3	0.333	0.167	0.167	0.167	n/a						
FREQ	1/day	1/day	3/wk	1/wk	3/wk	1/wk	1/wk	1/6 mo	1/6 mo	1/6 mo	1/mo						
UNITS	MGD	s.u.	ppd	ppd	ppd	ppd	ppd	ppd	ppd	ppd							
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Signature of Responsible Official

Date:

ADEM FORM 361 (R) 1/88

ADEM DISCHARGE MONITORING REPORT

☐ MONTHLY

MONTH: _____, 19 ____

COMPANY: ABC Coke Division
Drummond Co., Inc.

LOCATION: Tarrant, AL

NPDES NO. 0003417

DSN001

Production rate 2,150 tons/day

PARAM	Flow	pH	TSS	O&G	NH3	Cn	PHE	Benz	Naph	B(a)P	Prod	Tox					
AVG	--	6.0	602	49.9	76.1	16.8	0.153	--	--	--	--	--					
MAX	--	9.0	1161	150	259.3	30.5	0.305	0.153	0.153	0.153	n/a						
FREQ	1/day	1/day	3/wk	1/wk	3/wk	1/wk	1/wk	1/6 mo	1/6 mo	1/6 mo	1/mo						
UNITS	MGD	s.u.	ppd	ppd	ppd	ppd	ppd	ppd	ppd	ppd							
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Signature of Responsible Official

Date:

ADEM FORM 361 (R1-1/93)

ADEM DISCHARGE MONITORING REPORT

MONTH: _____ , 19 ____

☐ MONTHLY

COMPANY: ABC Coke Division
Drummond Co.,Inc.

LOCATION: Tarrant, AL

NPDES NO. 0003417

DSN001

PARAM	NH3	PHE	Benz	Naph													
AVG	--	--	---	---													
MAX	137.3	25.1	130.2	56.5													
FREQ	3/wk	1/wk	1/6mo	1/6mo													
UNITS	mg/l	mg/l	mg/l	mg/l													
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Signature of Responsible Official _____ *Date:* _____

ADEM FORM 261 (B) 1/88

ADEM TRACKING SHEET(DMR)

MONTHLY X Failure to Report ___ Incomplete Report √ Limits Violation ___ Dec 1 QTR. 1992

COMPANY: ABC Coke Division (Major) LOCATION: Tarrant NPDES NO. AL0003417 MAJOR

DSN001

PARAM	NH3	PHE	Benzene	Naph
MIN	N/A	N/A	N/A	N/A
MAX	137.3	25.1	130.2	56.5
MO.AVG.	Mon	Mon	Mon	Mon
FREQ	3/wk	1/wk	1/6mo	1/6mo
UNITS	mg/l	mg/l	mg/l	mg/l
1992				
JAN		1/		
FEB	nv			
MAR	nr			
APR	nv			
MAY	nv			
JUN *	v		nr *	nr *
JUL	nv			
AUG	3/			
SEP	ftr 2 v	12/2/92		
OCT	1/			
NOV	nv			
DEC v			nr	nr
JAN				
FEB				
MAR				
APR				
MAY				
JUN				
JUL				
AUG				
SEP				
OCT				
NOV				
DEC				

Action	Date	Rationale
Dmg ltr	3/4/93	Jun + Dec NR
NO ACTION		

Date of Resolution or Return to Compliance ___

S4

ADEM TRACKING SHEET(DMR)

MONTHLY X Failure to Report ___ Incomplete Report V Limits Violation ___ Dec. 1 QTR. 1992

COMPANY: ABC Coke Division (Major) LOCATION: Tarrant NPDES NO. AL0003417 MAJOR
Drummond Co., Inc.
DSN001 <Production rate 2,150 tons/day

PARAM	Flow	pH	TSS	O & G	NH3	Cn	PHE	Benzene	Naph	B(a)P	Prod	Tox		
MIN	N/A	6.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
MAX	Mon	9.0	1161	150	259.3	30.5	0.305	0.153	0.153	0.153	Mon			
MO.AVG.	Mon	N/A	602	49.9	76.1	16.8	0.153	N/A	N/A	N/A	N/A			
FREQ	1/day	1/day	3/wk	1/wk	3/wk	1/wk	1/wk	1/6mo	1/6mo	1/6mo	1/mo			
UNITS	MGD	ppd	ppd	ppd	ppd	ppd	ppd	ppd	ppd	ppd	ppd			
1992														
JAN	nv													
FEB v							1/							
MAR	nr													
APR	nv													
MAY	nv													
JUN *	nv							nr *	nr *	nr *				
JUL	nv													
AUG	nv													
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APR														
MAY														
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NOV														
DEC														

Action	Date	Rationale
NO ACTION		

Date of Resolution or Return to Compliance _____

DMR VIOLATION REPORT

Category of Discharge: Major X A-Major _____ Minor _____

Name ABC Coke Location B'ham, AL NPDES #AL 0003417

Reporting Period February 1988

Type of Violation: Failure to Report _____ Incomplete Report _____

Limits Violation X

If limits, extent of violation(s):

		DAILY AVERAGE			DAILY MAXIMUM		
)SN	PARAMETER	Reported	Limit	Adj. Limit	Reported	Limit	Adj. Limit
01	PHE	0.46	.2		4.73,	.4	

ACTION	DATE	RATIONALE
4. to A.G.		
o Action		

ate of Resolution or Return to Compliance _____

ngineer _____

DMR VIOLATION REPORT

Category of Discharge: Major X A-Major _____ Minor _____

Name Drummond Location Bham NPDES #AL 3417

Reporting Period Nov 88

Type of Violation: Failure to Report _____ Incomplete Report _____

Limits Violation X

If limits, extent of violation(s):

		DAILY AVERAGE			DAILY MAXIMUM		
DSN	PARAMETER	Reported	Limit	Adj. Limit	Reported	Limit	Adj. Limit
	Phe	.40	.2		1.71 2.12	.4	

ACTION	DATE	RATIONALE
No Action	1/18/88	See ltr. J. Clayton to J. Phillips, 12/13/88.

Date of Resolution or Return to Compliance _____

Engineer JWP

57

DMR VIOLATION REPORT

Category of Discharge: Major ✓ A-Major _____ Minor _____

Name ABC Coke Div Location Talladega NPDES #AL 3417

Reporting Period 12/89

Type of Violation: Failure to Report _____ Incomplete Report _____

Limits Violation ✓

If limits, extent of violation(s):

		DAILY AVERAGE			DAILY MAXIMUM		
DSN	PARAMETER	Reported	Limit	Adj. Limit	Reported	Limit	Adj. Limit
001	pH				9.11	6-9	

ACTION	DATE	RATIONALE
Wrng Ltr.	2/13/90	
No Action		

Date of Resolution or Return to Compliance _____

Engineer JWP

DMR VIOLATION REPORT

Category of Discharge: Major_____ A-Major_____ Minor ✓

Name ABC Coke Division Location Tarrant, AL NPDES #AL 3417

Reporting Period April 1989

Type of Violation: Failure to Report_____ Incomplete Report ✓

Limits Violation_____

If limits, extent of violation(s):

		DAILY AVERAGE			DAILY MAXIMUM		
DSN	PARAMETER	Reported	Limit	Adj. Limit	Reported	Limit	Adj. Limit
201	CN				1/week not reported		
~~002~~	~~Flow~~	no	violation		~~April 1-9 - NO indication of flow - discharge not~~		

ACTION	DATE	RATIONALE
Wrng ltr.	6/12/89	FTR cyanide 1/wk
No Action		

Date of Resolution or Return to Compliance_____

Engineer JWP

59

DMR VIOLATION REPORT

Category of Discharge: Major ✓ A-Major _____ Minor _____

Name ABC Coke Division Location Jarrent NPDES #AL 3417

Reporting Period November 1989

Type of Violation: Failure to Report _____ Incomplete Report ✓

Limits Violation _____

If limits, extent of violation(s):

		DAILY AVERAGE			DAILY MAXIMUM		
DSN	PARAMETER	Reported	Limit	Adj. Limit	Reported	Limit	Adj. Limit
002	MN				1/disc NR		
	Fe, T						
	TSS						

ACTION	DATE	RATIONALE
Phone Call	1/14/90	S Morgan to send current DMR Asap
No Action		

Date of Resolution or Return to Compliance _____

Engineer FWF

60

DMR VIOLATION REPORT

Category of Discharge: Major ✓ A-Major _____ Minor _____

Name ABC Coke Location Tarrant NPDES #AL 3417

Reporting Period Dec. 1989

Type of Violation: Failure to Report ✓ Incomplete Report _____

Limits Violation _____

If limits, extent of violation(s):

		DAILY AVERAGE			DAILY MAXIMUM		
DSN	PARAMETER	Reported	Limit	Adj. Limit	Reported	Limit	Adj. Limit
201	Benz.				1/6 mo NR		
	Naph.						
201	Benz.				1/6 mo NR		
	Naph.						
	B(a)P						
	Prod.				1/mo NR		

ACTION	DATE	RATIONALE
Wr. Ltr.	2/12/90	

No Action

Date of Resolution or Return to Compliance _____

Engineer JWP

DMR VIOLATION REPORT

Category of Discharge: Major ✓ A-Major _____ Minor _____

Name ABC Coke Division Location Jarrard NPDES #AL 3417

Reporting Period 2/90

Type of Violation: Failure to Report _____ Incomplete Report ✓

Limits Violation _____

If limits, extent of violation(s):

		DAILY AVERAGE			DAILY MAXIMUM		
DSN	PARAMETER	Reported	Limit	Adj. Limit	Reported	Limit	Adj. Limit
001	Prod.				1/mo- NR		

ACTION	DATE	RATIONALE
Ltr. 4	4-18-90	
No Action		

Date of Resolution or Return to Compliance _____

Engineer JWP

62

DMR VIOLATION REPORT

Category of Discharge: Major_____ A-Major_____ Minor ✓

Name ABC Rail Corp. Location Calera NPDES #AL 2691

Reporting Period July 1990

Type of Violation: Failure to Report_____ Incomplete Report_____

Limits Violation ✓

If limits, extent of violation(s):

		DAILY AVERAGE			DAILY MAXIMUM		
SN	PARAMETER	Reported	Limit	Adj. Limit	Reported	Limit	Adj. Limit
1	Cu, TR				20	18	
	Pb, TR	3.8	3.22				
	Zn, TR	104	47				

ACTION	DATE	RATIONALE
Standard Ltr.	8/90	
No Action		

Date of Resolution or Return to Compliance_____

Engineer SWP

63

ADEM Form 07 1/92

ADEM

ALABAMA
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Guy Hunt
Governor

Leigh Pegues, Director

1751 Cong. W. L.
Dickinson Drive
Montgomery, AL
36130
205 / 271-7700

Field Offices:

Unit 806, Building 8
225 Oxmoor Circle
Birmingham, AL
35209
205 / 942-6168

P.O. Box 953
Decatur, AL
35602
205 / 353-1713

2204 Perimeter Road
Mobile, AL
36615
205 / 479-2336

March 5, 1990

CERTIFIED MAIL NO. P 070 962 409
RETURN RECEIPT REQUESTED

Mr. Steve W. Morgan
Environmental Engineer
ABC Coke Plant
P.O. Box 10246
Birmingham, Alabama 35202

Dear Mr. Morgan:

RE: Warning Letter
EPA ID No. ALD 000 823 179

On December 14, 1989, Ms. Alicia A. Finch of the RCRA Compliance Branch of the Alabama Department of Environmental Management (ADEM) conducted an inspection of the above-referenced facility. The purpose of the inspection was to determine the facility's compliance with the generator standards outlined in Chapters 335-14-3 and 335-14-9 of the ADEM Administrative Code of Rules.

The following violations were noted during the inspection. Please refer to the referenced Rule for more information on each violation.

RULE	VIOLATION/COMMENT
335-14-3-.03(5)(a)1. 335-14-6-.10(4)	Secondary Containment for Hazardous Waste Tanks. The secondary containment must be designed, installed, and operated to prevent any migration of wastes or accumulated liquid out of the system to the soil, groundwater, or surface water at any time during the use of the tank, and must be capable of detecting and collecting releases and accumulated liquids until the collected material is removed. ABC's proposed containment (for the agitator cone tank) with metal sides and base could be adequate containment if the containment is placed on a stable foundation, is capable of containing 100

Docket 20

RULE	VIOLATION
	percent of the tank's capacity, and is free of cracks and gaps. Also, run-on into the secondary containment must be prevented and/or removed within twenty-four (24) hours of its occurrence.
335-14-3-.03(5)(a)1. 335-14-6-.10(6)(a)	The owner or operator must inspect, where present, at least once each operating day: (1) overfill/spill control equipment of a tank system; (2) aboveground portions of a tank system; (3) data gathered from monitoring equipment and leak detection equipment; and (4) the tank system's construction materials and the surrounding area (including secondary containment). According to facility personnel, it is not known whether or not the type of inspection outlined above is done on a regular basis. In order to verify that inspections are being done as required, it is advised that documentation of these daily inspections be kept at the facility.
335-14-3-.03(5)(a)3.	While being accumulated on-site each container and tank must be labeled or marked clearly with the words, **"HAZARDOUS WASTE"** and the EPA hazardous waste number. The agitator cone tank which contains the K087 hazardous waste must be labeled in order to comply with the above Rule.
335-14-3-.03(5)(a)4. 335-14-5-.02(5)(c)	A sign with the legend, **"DANGER-UNAUTHORIZED PERSONNEL KEEP OUT"** or similar sign must be posted at each entrance to the active portion of the facility, and at other locations, in sufficient numbers to be seen from any approach to the active portion. The sign must be visible from a distance of at least 25 feet.

RULE	VIOLATION
	"DANGER" signs must be posted near the area of the agitator cone tank, since it is the point of hazardous waste generation, in order to comply with the above Rule.
335-14-3-.03(5)(a)4. 335-14-5-.02(7)(c)	Facility personnel must take part in an annual review of the initial hazardous waste training. ABC conducts personnel training sessions for all new employees, but this training has not been updated on an annual basis as required by the above Rule.
335-14-3-.03(5)(a)4. 335-14-5-.04(3)(d)	Contingency Plan. The contingency plan must list names, addresses, and phone numbers (office and home) of all persons qualified to act as emergency coordinator, and this list must be kept up to date. ABC's contingency plan must be revised to include the names, not just the positions, of those who act as emergency coordinator in order to comply with the above Rule. Also include the addresses and home phone numbers of these individuals.
335-14-3-.04(1)(a)	A generator must keep a copy of each manifest signed until he receives the original signed copy from the designated facility which received the waste. This original signed copy must be retained as a record for at least three (3) years from the date the waste was accepted by the initial transporter. At the time of inspection copies of the manifests for the K087 waste could not be found. However, it is noted that the manifests were sent to the Department on December 29, 1989, thereby correcting the violation of the above Rule.

Please be aware that ADEM and EPA Region IV currently enforce Land Disposal Regulations per Chapter 335-14-9 of the ADEM Administrative Code and 40 CFR Part 268, respectively. At the time of inspection, a Land Disposal Restriction Checklist was completed. A copy of this checklist will be forwarded to EPA Region IV.

Documentation of correction of these violations must be submitted to this Department within thirty (30) days of receipt of this letter. Failure to do so will result in further enforcement action being taken.

Should questions arise regarding this matter, contact Ms. Alicia A. Finch of the RCRA Compliance Branch at (205) 271-7726.

Sincerely,

Steve O. Jenkins
Chief, RCRA Compliance Branch
Land Division

SOJ/AAF:dm

c: Mr. Allan Antley
EPA Region IV

File: Generator

Originator	Section Chief
Branch Chief	Division Chief

Bi[illegible]gham, A[illegible] a 35202
Telephone: 205 849-1300
Telex: 82-1269

[redacted] Reference No. 14 —

ABC COKE

March 27, 1990

Steve O. Jenkins
Chief, RCRA Compliance Branch
Land Division
Alabama Department of Environmental Management
1751 Dickinson Drive
Montgomery, Al 36130

Dear Mr. Jenkins

RE: Warning Letter
EPA ID No. ALD 000 823 179

Please find below our response to alleged violations during the December inspection.

Page One Paragraphs one and two, continued to page two.
Secondary containment (metal sides and base) have been installed und[illegible] the cone tank. The containment will hold 110% of the tank's volume.

Page Two Paragraphs two and three. Our facility has around the clock seven day a week coverage by operators and foremen in this area. Thi[illegible] equipment is inspected at the beginning of each shift. Problems and [illegible] malfunctions are noted in the foreman's log. In addition, the department head makes a weekly inspection that is documented.

Page Two Paragraphs four and five. "Hazardous Waste K087" signs will[illegible] placed on the cone tanks.

Page Two Paragraph five and Page Three Paragraph one. Entrance to th[illegible] plant is confined to one location at the front gate. Entrance is controlled by a guard service and gate that is monitored 24 hours a day, 365 days per year. Danger signs are located in the cone tank ar[illegible]

Page Three Paragraphs two and three. Annual retraining will begin this year.

Page Three Paragraphs three and four. The contingency plan will be updated to include home address. Phone numbers, work and home were included before.

Page Three Paragraphs five and six. Correction as noted.

If you have any questions please contact Steve Morgan at 849-1338.

Sincerely,

ABC COKE DIVISION

W.M. Poling
Manager Engineering, Maintenance
and Environmental Control

WMP/sm

ABC COKE
Birmingham, Alabama 35202
Telephone: 205-849-1300
Telex: 82-1269

ABC COKE

FAX LETTER OF TRANSMITTAL

DATE: April 30, 1990

TIME: 2:15 pm

TO: Alvin Finch

FAX NUMBER: 271-7950

SUBJECT: Warning Letter

NUMBER OF PAGES TRANSMITTED (Including this letter): 3

IF YOU DO NOT RECEIVE THE NUMBER OF PAGES INDICATED
PLEASE NOTIFY THE SENDER AT ONCE
205-849-1391 (FAX NUMBER)

SENDER: Steve Mangan

Docket 24

Gen.

Reference No. 15

ADEM

ALABAMA
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Guy Hunt
Governor

Leigh Pegues, Director

1751 Cong. W. L.
Dickinson Drive
Montgomery, AL
36130
205/271-7700

Field Offices:

Unit 806, Building 8
225 Oxmoor Circle
Birmingham, AL
35209
205/942-6168

P.O. Box 953
Decatur, AL
35602
205/353-1713

2204 Perimeter Road
Mobile, AL
36615
205/479-2336

March 21, 1990

MEMORANDUM

Originator | Section Chief
Branch Chief | Division Chief

TO: Steven O. Jenkins, Chief
RCRA Compliance Branch
Land Division

FROM: Alicia A. Finch
RCRA Compliance Branch
Land Division

RE: Trip Report - ABC Coke Plant
USEPA ID No. ALD 000 823 179

On December 14, 1989, Alicia A. Finch of the RCRA Compliance Branch of ADEM conducted an inspection of the above-referenced facility. The purpose of the inspection was to determine the facility's compliance with the generator standards outlined in Chapters 335-14-3 and 335-14-9 of the ADEM Administrative Code of Rules.

ABC Coke is a metallurgical coke and co-product producer.

The facility contact, Mr. Steve Morgan, was out of the office, so I met with Mr. Jerry Brown and Mr. David Stafford. The inspection began at 11:30 a.m.

Mr. Stafford conducted a safety training session which is required for all persons entering the industrial portion of the facility.

During the site tour, Mr. Stafford informed me that ABC no longer has a container storage area for the storage of the K087 waste (decanter tank tar sludge from coking operations) generated at the facility. Allied Corporation was used to dispose of the K087 waste prior to March 1988 when Allied was ABC's sole tar product customer. ABC began to sell the tar product to Koppers Coke also, so Allied declined to accept any more of the K087 waste.

ABC now recycles the heavy bottoms (K087 waste) back into the coke ovens with unused coal. After the tar is in the decanter tank, the heavy bottoms are mechanically released into an open agitator cone tank. Approximately 100 to 150 gallons of the K087 are released into a buggy and are immediately transported to the coke ovens each day.

Docket 3

The agitator cone tank was not labeled as required by rule 335-14-3-.03(5)(a)3. No "Danger" signs were near the tank as required by Rules 335-14-3-.03(5)(a)4. and 335-14-5-.02(5)(c). Also, the tank did not have a containment system as required by Rules 335-14-3-.03(5)(a)1. and 335-14-6-.10(4). Upon talking to Mr. Steve Morgan on January 9, 1990, it was proposed that a metal base with sides and the capacity to contain 100 percent of the tank capacity be installed as the secondary containment.

ABC does have a contingency plan, but it has to be revised to include the names of those designated as emergency coordinators and also to include the addresses of the emergency coordinators. This is required by Rules 335-14-3-.03(5)(a)4. and 335-14-5-.04(3)(d).

ABC's personnel training is not updated on an annual basis as required by Rules 335-14-3-.03(5)(a)4. and 335-14-5-.02(7)(c).

At the time of inspection, manifests for the previously disposed K087 hazardous waste could not be found. The manifests were submitted to the Department on December 20, 1989.

ABC was told to maintain an inspection log of the tank and surrounding area in order to comply with Rules 335-14-3-.03(5)(a)1. and 335-14-6-.10(6)(c).

ABC will receive a Warning Letter as a result of this inspection.

AAF/kap

File: GEN ✓

[redacted]

Reference No. 16

TELEPHONE CONTACT SUMMARY
DYNAMAC CORPORATION

Call made by: Nilgun Akpinar
On (Date): December 23, 1992
At (Time): 1140

Signature/Date: Nilgun Akpinar 12-23-92
Facility: Alabama By-Products Corporation
Tarrant City, Jefferson County, Alabama
CERCLIS or EPA ID No: ALD000823179

Person(s) contacted: Stephen Cobb
Title/Position: Environmental Scientist
Phone: (205) 271-7726
Organization: Alabama Department of Environemtal Management
Address (City/State): Montgomery, Alabama

GENERAL SUBJECT: Information on the RCRA status of Alabama By-Products Corporation

CONVERSATION SUMMARY: Mr. Cobb stated that the Alabama By-Products Corporation has no current RCRA permitting activity. He postulated that in order to avoid having to obtain a RCRA permit, the facility closed off their surface impoundment.

Mr. Cobb stated that the file material he has concerning the RCRA status is very brief and not very thorough. It seems as if the surface impoundment was closed in 1982; therefore there was no need to have it permitted by RCRA.

[redacted]

Reference No. 17

Telephone Contact Summary
Dynamac Corporation

Call made by: Doug Meade
On (Date): December 28, 1992
At (Time): 9:00 am

Signature/Date: Doug Meade 12/28/92

Person(s) contacted: Name: Ken Feely
Title/Position: Environmental Scientist
Phone: (404) 347-7603
Organization: U. S. EPA-RCRA Compliance Section
Address (City/State): Atlanta, Georgia

Subject: RCRA status of Alabama sites for SIPS

Conversation Summary

Mr. Feely stated that the following sites were TSDs under RCRA:

1. DuPont Mobile Plant
2. M & M Chemical & Equipment

Mr. Feely stated that the following sites were not regulated by RCRA:

1. ABC Coke Division of Drummond (Large Quantity Generator)
2. Alabama Agricultural Services
3. Sanders Bumper Plating

[redacted]

— Reference No. 18 —

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
AL	D000823179

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
ALABAMA BY-PRODUCTS CORPORATION	ALABAMA ST. & HUNTSVILLE RD

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
TARRANT CITY	AL	35217	JEFFERSON	073	06

09 COORDINATES LATITUDE	LONGITUDE
33 35 15.	086 47 00.

10 DIRECTIONS TO SITE (Starting from nearest public road)
HWY 65 TO I-59. TAKE TUSCALOUSA AVE. EXIT. TAKE VANDERBILT AVE. APPROX. 1.5 MILES. PLANT IS ON LEFT. BLOCK PAST MOTERCYCLE STORE TURN LEFT.

III. RESPONSIBLE PARTIES

01 OWNER (If known)	02 STREET (Business, mailing, residential)
ALABAMA BY-PRODUCTS CORPORATION	FIRST NATIONAL-SOUTHERN NATURAL BUILDING P.O. BOX 10246

03 CITY	04 STATE	05 ZIP CODE	06 TELEPHONE NUMBER
BIRMINGHAM	AL	35202	(205) 252-5171

07 OPERATOR (If known and different from owner)	08 STREET (Business, mailing, residential)
SAME	

09 CITY	10 STATE	11 ZIP CODE	12 TELEPHONE NUMBER
			( )

13 TYPE OF OWNERSHIP (Check one)
☑ A. PRIVATE ☐ B. FEDERAL: _____ (Agency name) ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL
☐ F. OTHER: _____ (Specify) ☐ G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)
☐ A. RCRA 3001 DATE RECEIVED: 11 / 19 / 80 (MONTH DAY YEAR) ☐ B. UNCONTROLLED WASTE SITE (CERCLA 103 c) DATE RECEIVED: / / (MONTH DAY YEAR) ☐ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION
☐ YES DATE 11 / 6 / 80 (MONTH DAY YEAR)
☐ NO

BY (Check all that apply)
☐ A. EPA ☐ B. EPA CONTRACTOR ☐ C. STATE ☐ D. OTHER CONTRACTOR
☐ E. LOCAL HEALTH OFFICIAL ☐ F. OTHER: _____ (Specify)
CONTRACTOR NAME(S): _____

02 SITE STATUS (Check one)
☑ A. ACTIVE ☐ B. INACTIVE ☐ C. UNKNOWN

03 YEARS OF OPERATION
1920 (BEGINNING YEAR) | _____ (ENDING YEAR) ☐ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED
K087 - DECANTER TAR SLUDGE

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION
TAR SLUDGE IS CURRENTLY RECYCLED

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents)
☐ A. HIGH (Inspection required promptly) ☐ B. MEDIUM (Inspection required) ☒ C. LOW (Inspection at a later time, if possible basis) ☐ D. NONE (No further action needed; complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NUMBER
STEPHEN MAURER SCM	ADEM	(205) 271-7723

04 PERSON RESPONSIBLE FOR ASSESSMENT	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NUMBER	08 DATE
STEVEN M. HORNUNG		EPS	(601) 922-8242	10 / 4 / 84 (MONTH DAY YEAR)

EPA FORM 2070-12 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
AL	0000823179

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- A. SOLID
- B. POWDER, FINES
- C. SLUDGE
- D. OTHER (Specify)
- E. SLURRY
- F. LIQUID
- G. GAS

02 WASTE QUANTITY AT SITE

(Measures of waste quantities must be independent)

TONS ____

CUBIC YARDS ____

NO. OF DRUMS ____

03 WASTE CHARACTERISTICS (Check all that apply)

- A. TOXIC
- B. CORROSIVE
- C. RADIOACTIVE
- D. PERSISTENT
- E. SOLUBLE
- F. INFECTIOUS
- G. FLAMMABLE
- H. IGNITABLE
- I. HIGHLY VOLATILE
- J. EXPLOSIVE
- K. REACTIVE
- L. INCOMPATIBLE
- M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS			
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

ADEM HAZARDOUS WASTE AND INDUSTRIAL FILES

CONVERSATION WITH ALABAMA BY-PRODUCTS REPRESENTATIVE

1983 GENERATOR REPORT

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
AL	D000823179

II. HAZARDOUS CONDITIONS AND INCIDENTS *(Continued)*

01 ☐ J. DAMAGE TO FLORA — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ K. DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION *(Include name(s) of species)*

01 ☐ L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ M. UNSTABLE CONTAINMENT OF WASTES *(Spills/runoff/standing liquids/leaking drums)* — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☐ N. DAMAGE TO OFFSITE PROPERTY — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

III. TOTAL POPULATION POTENTIALLY AFFECTED: _____

IV. COMMENTS

V. SOURCES OF INFORMATION *(Cite specific references, e. g., state files, sample analysis, reports)*

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
AL	D000823179

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☐ A. GROUNDWATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☐ B. SURFACE WATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☐ C. CONTAMINATION OF AIR — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☐ E. DIRECT CONTACT — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☐ F. CONTAMINATION OF SOIL — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: _____ (Acres) 04 NARRATIVE DESCRIPTION

01 ☐ G. DRINKING WATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☐ H. WORKER EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 WORKERS POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☐ I. POPULATION EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

1R5

EPA POTENTIAL HAZARDOUS WASTE SITE IDENTIFICATION AND PRELIMINARY ASSESSMENT

REGION	SITE NUMBER (to be assigned by Hq)

NOTE: This form is completed for each potential hazardous waste site to help set priorities for site inspection. The information submitted on this form is based on available records and may be updated on subsequent forms as a result of additional inquiries and on-site inspections.

GENERAL INSTRUCTIONS: Complete Sections I and III through X as completely as possible before Section II *(Preliminary Assessment)*. File this form in the Regional Hazardous Waste Log File and submit a copy to: U.S. Environmental Protection Agency; Site Tracking System; Hazardous Waste Enforcement Task Force *(EN-335)*; 401 M St., SW; Washington, DC 20460.

ALD000823179 JEFFERSON 1085
TARRANT COKE PLANT
ALABAMA ST & HUNTSVILLE AVE
TARRANT AL 35217
EDWARDS, MOYER, DIR/ENV # 2052525171

I. IDENTIFICATION

B. STREET *(or other identifier)*

C. STATE	D. ZIP CODE	E. COUNTY NAME

F. TELEPHONE NUMBER

G. TYPE OF OWNERSHIP
☐ 1. FEDERAL ☐ 2. STATE ☐ 3. COUNTY ☐ 4. MUNICIPAL ☐ 5. PRIVATE ☐ 6. UNKNOWN

"103-C NOTIFICATION" DATE: 810609
DAN COUPER OR BUDDY COX
PHONE: 205-832-6728

J. DATE IDENTIFIED *(mo., day, & yr.)*

K. TELEPHONE NUMBER

II. PRELIMINARY ASSESSMENT *(complete this section last)*

A. APPARENT SERIOUSNESS OF PROBLEM
☐ 1. HIGH ☐ 2. MEDIUM ☐ 3. LOW ☐ 4. NONE ☐ 5. UNKNOWN

B. RECOMMENDATION
☐ 1. NO ACTION NEEDED *(no hazard)*
☐ 2. IMMEDIATE SITE INSPECTION NEEDED
a. TENTATIVELY SCHEDULED FOR:
b. WILL BE PERFORMED BY:
☐ 3. SITE INSPECTION NEEDED
a. TENTATIVELY SCHEDULED FOR:
b. WILL BE PERFORMED BY:
☐ 4. SITE INSPECTION NEEDED *(low priority)*

C. PREPARER INFORMATION

1. NAME	2. TELEPHONE NUMBER	3. DATE *(mo., day, & yr.)*
--		

III. SITE INFORMATION

A. SITE STATUS
☐ 1. ACTIVE *(Those industrial or municipal sites which are being used for waste treatment, storage, or disposal on a continuing basis, even if infrequently.)*
☐ 2. INACTIVE *(Those sites which no longer receive wastes.)*
☐ 3. OTHER *(specify)*: *(Those sites that include such incidents like "midnight dumping" where no regular or continuing use of the site for waste disposal has occurred.)*

B. IS GENERATOR ON SITE?
☐ 1. NO ☐ 2. YES *(specify generator's four-digit SIC Code)*:

C. AREA OF SITE *(in acres)*

D. IF APPARENT SERIOUSNESS OF SITE IS HIGH, SPECIFY COORDINATES
1. LATITUDE *(deg.-min.-sec.)*
2. LONGITUDE *(deg.-min.-sec.)*

E. ARE THERE BUILDINGS ON THE SITE?
☐ 1. NO ☐ 2. YES *(specify)*:

Continue On Reverse

Continued From Front

IV. CHARACTERIZATION OF SITE ACTIVITIES

Indicate the major site activity(ies) and details relating to each activity by marking 'X' in the appropriate boxes.

'X'	A. TRANSPORTER	'X'	B. STORER	'X'	C. TREATER	'X'	D. DISPOSER
	1. RAIL		1. PILE		1. FILTRATION		1. LANDFILL
	2. SHIP		2. SURFACE IMPOUNDMENT		2. INCINERATION		2. LANDFARM
	3. BARGE		3. DRUMS		3. VOLUME REDUCTION		3. OPEN DUMP
	4. TRUCK		4. TANK, ABOVE GROUND		4. RECYCLING/RECOVERY		4. SURFACE IMPOUNDMENT
	5. PIPELINE		5. TANK, BELOW GROUND		5. CHEM./PHYS. TREATMENT		5. MIDNIGHT DUMPING
	6. OTHER (specify):		6. OTHER (specify):		6. BIOLOGICAL TREATMENT		6. INCINERATION
					7. WASTE OIL REPROCESSING		7. UNDERGROUND INJECTION
					8. SOLVENT RECOVERY		8. OTHER (specify):
					9. OTHER (specify):		

E. SPECIFY DETAILS OF SITE ACTIVITIES AS NEEDED

V. WASTE RELATED INFORMATION

A. WASTE TYPE

☐ 1 UNKNOWN ☐ 2 LIQUID ☐ 3. SOLID ☐ 4. SLUDGE ☐ 5. GAS

B. WASTE CHARACTERISTICS

☐ 1 UNKNOWN ☐ 2. CORROSIVE ☐ 3. IGNITABLE ☐ 4 RADIOACTIVE ☐ 5 HIGHLY VOLATILE
☐ 6. TOXIC ☐ 7 REACTIVE ☐ 8 INERT ☐ 9 FLAMMABLE

☐ 10. OTHER (specify): _____

C. WASTE CATEGORIES

1. Are records of wastes available? Specify items such as manifests, inventories, etc. below.

2. Estimate the amount (specify unit of measure) of waste by category; mark 'X' to indicate which wastes are present.

a. SLUDGE	b. OIL	c. SOLVENTS	d. CHEMICALS	e. SOLIDS	f. OTHER
AMOUNT	AMOUNT	AMOUNT	AMOUNT	AMOUNT	AMOUNT
UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE
'X' (1) PAINT, PIGMENTS	'X' (1) OILY WASTES	'X' (1) HALOGENATED SOLVENTS	'X' (1) ACIDS	'X' (1) FLYASH	'X' (1) LABORATORY PHARMACEUT.
(2) METALS SLUDGES	(2) OTHER (specify):	(2) NON-HALOGNTD. SOLVENTS	(2) PICKLING LIQUORS	(2) ASBESTOS	(2) HOSPITAL
(3) POTW		(3) OTHER (specify):	(3) CAUSTICS	(3) MILLING/ MINE TAILINGS	(3) RADIOACTIVE
(4) ALUMINUM SLUDGE			(4) PESTICIDES	(4) FERROUS SMLTG. WASTES	(4) MUNICIPAL
(5) OTHER (specify):			(5) DYES/INKS	(5) NON-FERROUS SMLTG. WASTES	(5) OTHER (specify):
			(6) CYANIDE	(6) OTHER (specify):	
			(7) PHENOLS		
			(8) HALOGENS		
			(9) PCB		
			(10) METALS		
			(11) OTHER (specify)		

Continue On Page 3

Continued From Page 2

V. WASTE RELATED INFORMATION *(continued)*

3. LIST SUBSTANCES OF GREATEST CONCERN WHICH MAY BE ON THE SITE *(place in descending order of hazard)*.

4. ADDITIONAL COMMENTS OR NARRATIVE DESCRIPTION OF SITUATION KNOWN OR REPORTED TO EXIST AT THE SITE.

VI. HAZARD DESCRIPTION

A. TYPE OF HAZARD	B. POTENTIAL HAZARD *(mark 'X')*	C. ALLEGED INCIDENT *(mark 'X')*	D. DATE OF INCIDENT *(mo., day, yr.)*	E. REMARKS
1. NO HAZARD				
2. HUMAN HEALTH				
3. NON-WORKER INJURY/EXPOSURE				
4. WORKER INJURY				
5. CONTAMINATION OF WATER SUPPLY				
6. CONTAMINATION OF FOOD CHAIN				
7. CONTAMINATION OF GROUND WATER				
8. CONTAMINATION OF SURFACE WATER				
9. DAMAGE TO FLORA/FAUNA				
10. FISH KILL				
11. CONTAMINATION OF AIR				
12. NOTICEABLE ODORS				
13. CONTAMINATION OF SOIL				
14. PROPERTY DAMAGE				
15. FIRE OR EXPLOSION				
16. SPILLS/LEAKING CONTAINERS/ RUNOFF/STANDING LIQUIDS				
17. SEWER, STORM DRAIN PROBLEMS				
18. EROSION PROBLEMS				
19. INADEQUATE SECURITY				
20. INCOMPATIBLE WASTES				
21. MIDNIGHT DUMPING				
22. OTHER *(specify)*:				

Continue On Reverse

Continued From Front

VII. PERMIT INFORMATION

A. INDICATE ALL APPLICABLE PERMITS HELD BY THE SITE.

☐ 1. NPDES PERMIT ☐ 2. SPCC PLAN ☐ 3. STATE PERMIT *(specify)*: _____

☐ 4. AIR PERMITS ☐ 5. LOCAL PERMIT ☐ 6. RCRA TRANSPORTER

☐ 7. RCRA STORER ☐ 8. RCRA TREATER ☐ 9. RCRA DISPOSER

☐ 10. OTHER *(specify)*: _____

B. IN COMPLIANCE?

☐ 1. YES ☐ 2. NO ☐ 3. UNKNOWN

4. WITH RESPECT TO *(list regulation name & number)*: _____

VIII. PAST REGULATORY ACTIONS

☐ A. NONE ☐ B. YES *(summarize below)*

IX. INSPECTION ACTIVITY *(past or on-going)*

☐ A. NONE ☐ B. YES *(complete items 1, 2, 3, & 4 below)*

1. TYPE OF ACTIVITY	2. DATE OF PAST ACTION *(mo., day, & yr.)*	3. PERFORMED BY: *(EPA/State)*	4. DESCRIPTION

X. REMEDIAL ACTIVITY *(past or on-going)*

☐ A. NONE ☐ B. YES *(complete items 1, 2, 3, & 4 below)*

1. TYPE OF ACTIVITY	2. DATE OF PAST ACTION *(mo., day, & yr.)*	3. PERFORMED BY: *(EPA/State)*	4. DESCRIPTION

NOTE: Based on the information in Sections III through X, fill out the Preliminary Assessment *(Section II)* information on the first page of this form.

EPA

PRELIMINARY ASSESSMENT OF POTENTIAL HAZARDOUS WASTE SITE
TENTATIVE DISPOSITION

REGION: 4 | SITE NUMBER: ALD 000823179

File this form in the regional Hazardous Waste Log File and submit a copy to: U.S. Environmental Protection Agency; Site Tracking System; Hazardous Waste Enforcement Task Force (EN-335); 401 M St., SW; Washington, DC 20460.

I. SITE IDENTIFICATION

A. SITE NAME	B. STREET	
Alabama By-Products Corporation	Alabama St + Huntsville Rd	
C. CITY	D. STATE	E. ZIP CODE
Tarrant City (Jefferson Co)	AL	35217

II. TENTATIVE DISPOSITION

Indicate the recommended action(s) and agency(ies) that should be involved by marking 'X' in the appropriate boxes.

RECOMMENDATION	MARK 'X'	ACTION AGENCY: EPA	STATE	LOCAL	PRIVATE
A. NO ACTION NEEDED -- NO HAZARD					
B. INVESTIGATIVE ACTION(S) NEEDED (If yes, complete Section III.)	X				
C. REMEDIAL ACTION NEEDED (If yes, complete Section IV.)					
D. ENFORCEMENT ACTION NEEDED (If yes, specify in Part E whether the case will be primarily managed by the EPA or the State and what type of enforcement action is anticipated.)					

E. RATIONALE FOR DISPOSITION

There is contamination on site. There is no indication in the SI [redacted] of whether the water from 5 mile creek is used for drinking or whether any wells exist in the area of the site

F. INDICATE THE ESTIMATED DATE OF FINAL DISPOSITION (mo., day, & yr.)	G. IF A CASE DEVELOPMENT PLAN IS NECESSARY, INDICATE THE ESTIMATED DATE ON WHICH THE PLAN WILL BE DEVELOPED (mo., day, & yr.)

H. PREPARER INFORMATION

1. NAME	2. TELEPHONE NUMBER	3. DATE (mo., day, & yr.)
Elizabeth M Shaver	(404) 881-2234	4-16-85

III. INVESTIGATIVE ACTIVITY NEEDED

A. IDENTIFY ADDITIONAL INFORMATION NEEDED TO ACHIEVE A FINAL DISPOSITION.

Are there any targets ?

B. PROPOSED INVESTIGATIVE ACTIVITY (Detailed Information)

1. METHOD FOR OBTAINING NEEDED ADDITIONAL INFO.	2. SCHEDULED DATE OF ACTION (mo, day, & yr)	3. TO BE PERFORMED BY (EPA, Contractor, State, etc.)	4. ESTIMATED MANHOURS	5. REMARKS
a. TYPE OF SITE INSPECTION (1)				
(2)				
(3)				
b. TYPE OF MONITORING (1)				
(2)				
c. TYPE OF SAMPLING (1)				
(2)				

EPA Form T2070-4 (10-79)

Continue On Reverse

Continued From Front

III. INVESTIGATIVE ACTIVITY NEEDED and PART B - PROPOSED INVESTIGATIVE ACTIVITY *(Continued)*

d. TYPE OF LAB ANALYSIS				
(1)				
(2)				
e. OTHER *(specify)*				
(1)				
(2)				

C. ELABORATE ON ANY OF THE INFORMATION PROVIDED IN PART B *(on front & above)* AS NEEDED TO IDENTIFY ADDITIONAL INVESTIGATIVE WORK.

D. ESTIMATED MANHOURS BY ACTION AGENCY

1. ACTION AGENCY	2. TOTAL ESTIMATED MANHOURS FOR INVESTIGATIVE ACTIVITIES	1. ACTION AGENCY	2. TOTAL ESTIMATED MANHOURS FOR INVESTIGATIVE ACTIVITIES
a. EPA		b. STATE	
c. EPA CONTRACTOR		d. OTHER *(specify)*	

IV. REMEDIAL ACTIONS

A. SHORT TERM/EMERGENCY STRATEGY *(On Site & Off-Site)*: List all emergency actions needed to bring site under immediate control, e.g., restrict access, provide alternate water supply, etc. See instructions for a list of Key Words for each of the actions to be used in the space below.

1. ACTION	2. EST. START DATE *(mo,day,& yr)*	3. EST. END DATE *(mo,day,& yr)*	4. ACTION AGENCY *(EPA, State, Private Party)*	5. ESTIMATED COST	6. SPECIFY 311 OR OTHER ACTION. INDICATE THE MAGNITUDE OF THE WORK REQUIRED
				$	
				$	
				$	
				$	
				$	
				$	

B. LONG TERM STRATEGY *(On Site & Off-Site)*: List all long term solutions, e.g., excavation, removal, ground water monitoring wells, etc. See instructions for a list of Key Words for each of the actions to be used in the spaces below.

1. ACTION	2. EST. START DATE *(mo,day,& yr)*	3. EST. END DATE *(mo,day,& yr)*	4. ACTION AGENCY *(EPA, State Private Party)*	5. ESTIMATED COST	6. SPECIFY 311 OR OTHER ACTION. INDICATE THE MAGNITUDE OF THE WORK REQUIRED
				$	
				$	
				$	
				$	
				$	
				$	

C. ESTIMATED MANHOURS AND COST BY ACTION AGENCY

1. ACTION AGENCY	2. TOTAL EST. MANHOURS FOR REMEDIAL ACTIVITIES	3. TOTAL EST. COST FOR REMEDIAL ACTIVITIES	1. ACTION AGENCY	2. TOTAL EST. MANHOURS FOR REMEDIAL ACTIVITIES	3. TOTAL EST. COST FOR REMEDIAL ACTIVITIES
a. EPA			b. STATE		
c. PRIVATE			d. OTHER *(specify)*		

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
EPS FORM 3012-III

INDUSTRIAL NARRATIVE SHEET

1. Site Identification:

Site number: ALD000823179

Site name: Alabama By-Products Corporation

Site county: Jefferson

2. Industrial Narrative Summary:

Company Name: Alabama By-Products Corporation

Address: P. O. Box 10246
Birmingham, AL 35202

Telephone No.: 205-252-5171

Contact: Moyer B. Edwards

Discussion: Alabama By-Products Corporation produces coke. As a waste decanter tar sludge, K087 is produced. The tar sludge is currently being reused as fuel with their coal. This has not been done since 1980. Prior to 1980, it is not known for sure what was done with the waste. It is believed that some sludge was landfilled on the plant property. Where or how much is not known. A CERCLA notification was filed regarding this. Mr. Edwards believes that some was probably burned and that none of it should have been disposed of off-site. A part "A" application was filed to cover the plant's wastewater treatment ponds. A permit was not needed and interim status was withdrawn. The discharge from the ponds is regulated by a NPDES permit.

3. Disposition:

A low priority inspection is needed to determine if hazardous waste has been disposed of on the property, and whether there is a problem with the environment.

4. Comments:

N/A

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
EPS FORM 3012-II

TELEPHONE LOG SHEET

1. Site Identification:
   Site number: ALD000823179
   Site name: ALABAMA BY-PRODUCTS CORPORATION

2. Interview Data: (Party called)
   Name: MOYER B. EDWARDS
   Position: DIRECTOR OF ENVIRONMENTAL CONTROL
   Firm: ALABAMA BY-PRODUCTS CORPORATION
   Address: P.O. BOX 10246
   BIRMINGHAM, AL 35202
   Telephone No.: (205) 250-5400

3. EPS Analyst Data:
   Name: STEVEN M. HORNUNG
   Purpose of call: CONFIRM INFO ON P.A.

   Form 2070-12 (7-81) P.N. PART I
   Date of call: WED, OCTOBER 3, 1984, OCTOBER 4, 1984

4. Interview Narrative Summary: THE DECANTER TAR SLUDGE IS CURRENTLY RECYCLED. THIS HAS BEEN DONE SINCE 1980. BEFORE 1980 HE IS NOT SURE. HE BELIEVES SOME OF IT WAS BURNED WITH THE COAL. SOME MAY HAVE BEEN LANDFILLED ON THE PROPERTY BUT HE DOESN'T KNOW WHERE OR IF IT WAS FOR CERTAIN. HE HAS ONLY WORK AT THE PLANT SINCE 1970. THE PLANT HAS BEEN IN OPERATION SINCE THE 1920'S. A CERCLA NOTIFICATION WAS FILED PROTECTIVELY.
   THE PART "A" APPLICATION THAT WAS FILED COVERED THEIR WASTEWATER TREATMENT PONDS. THE DISCHARGE IS COVERED BY A NPDES PERMIT AND IS NOT HAZARDOUS. THE TREATMENT PLANT CONSISTS OF AN EQUALIZATION POND, 2 CONCRETE ACTIVATED SLUDGE-CLARIFIER UNITS AND A POST-AERATION POND. BOTH PONDS ARE LINED WITH CLAY AND BENTONITE AND THE WATER IS NOT HAZARDOUS. THE SEDIMENT IN THE BASINS IS REMOVED AS NEEDED AND IT ~~IS~~ WAS BURNED ON THE COKE OVENS. INTERIM STATUS WITHDRAWN
   IS GOING TO CHECK INTO THE PRIOR DISPOSAL OF THE TAR SLUDGE.
   DOES NOT KNOW WHERE OR THAT THERE WAS SOME LANDFILLED FOR CERTAIN. NONE WAS DISPOSED OF OFF-SITE.

5. Disposition/Comments:

6. Comments: Any additional sites used by this company?
   Location:
   Dates of use:
   Description of waste:

   Comments:

POTENTIAL HAZARDOUS WASTE S[illegible]
PRELIMINARY ASSESSMENT
EPS FORM 3012-I
EPS ANALYST/REVIEWER CHECKLIST

Site No. ALD000823179
Site Name ALABAMA BY-PRODUCTS CORP.

Instructions: To be used in conjunction with EPA Form 2070-12 (7-81). Attach on inside front c site folder. Initial and date for all assessment entries under appropriate part/subpart as completed. initial/date in black for final assessment; in red i higher level (additional) assessment is in order. Follow same procedure for review process.

Review Codes: 1-Toxicology Review; 2-Chemical Review; 3-Ecology Review; 4-Chemical Engineer Review; 5-Geotechnical Review; 6-Project Manager Review; 7-Final Review

1. ANALYST/REVIEW STATUS

Form 2070 Part Number	Analyst/ Date	Review Code 1	Review Code 2	Review Code 3	Review Code 4	Review Code 5	Review Code 6	Review Code 7
1.I.-VI.								
	SMH/10-4-84						SMW 10/5	SMW 10/5
2.I.								
2.II.								
2.III.								
2.IV.								
2.V.								
2.VI.	SMH/10-4-84						SMW	SMW
3.I.								
3.II.A								
3.II.B								
3.II.C								
3.II.D								
3.II.E								
3.II.F								
3.II.G								
3.II.H								
3.II.I								
3.II.J								
3.II.K								
3.II.L								
3.II.M								
3.II.N								
3.II.O								
3.II.P								
3.III.								
3.IV.								
3.V.								

*No further assessment/review required, enter NA

ADEM

ALABAMA
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Guy Hunt
Governor

Leigh Pegues, Director

1751 Federal Drive
Montgomery, AL
36130
205/271-7700

Field Offices:

Unit 806, Building 8
225 Oxmoor Circle
Birmingham, AL
35209
205/942-6168

P.O. Box 953
Decatur, AL
35602
205/353-1713

2204 Perimeter Road
Mobile, AL
36615
205/479-2336

September 3, 1987

ALABAMA BY-PRODUCTS COMPANY - COKE
T.S.D.F. Inspection

On June 16, 1987 the writer, a member of the technical staff of the Alabama Department of Environmental Management, conduct a transport, storage, and/or disposal facility inspection at Alabama By-Products Company - Coke Plant in Jefferson County. A representative of the company was present during the inspection. Random sludge samples were taken from the following: Equalization Basin (DSN 001), Post Aeration Basin (DSN 001), and Storm Runoff Basin (DSN 002).

Standard operating procedure was used in the collection, transportation, and preservation of the samples. Samples were transported to the ADEM Central Laboratory in Montgomery for analysis. Chain-of-custody was maintained by locking the samples in the van when they were not in sight of a State employee. Duplicated samples were offered to the facility.

There were no pH measurements done on these ponds. The material was of a consistency that would have fouled the probe of the pH meter. Measurement of ponds of this type need to be done with narrow range pH paper. The results of the analysis are include in Table 1.

Ronald F. Ford
Compliance/Emergency Response Section
Field Operations Division

RFF/mpt

TABLE 1

Facility ALABAMA BY-PRODUCTS COMPANY COKE PLANT

	DATE	SULFIDES (mg/l)	FLASH POINT	ARSENIC-E.P. (mg/l)	ARSENIC-TOTAL (ug/g)	BARIUM-E.P. (mg/l)	BARIUM-TOTAL (ug/g)	CADMIUM-E.P. (mg/l)	CADMIUM-TOTAL (ug/g)	TOTAL CHROMIUM-E.P. (mg/l)	TOTAL CHROMIUM-TOTAL (ug/g)	LEAD-E.P. (mg/l)
Equalization Basin DSN 001	6/16/87	1320	None	<.01 <.01	4.4 4.1	0.6 0.5	<50 <50	<.05 <.05	<5 <5	<.05 <.05	50 24	<0.5 <0.5
Post Aeration Basin DSN 001	6/16/87	185.6	None	<.01	6.4	<0.5	<50	<.05	<5	<.05	14	<0.5
Storm Runoff Basin DSN 002	6/16/87	457.6	None	<.01	4.6	0.5	50	<.05	<5	<.05	12	<0.5
Primary D.W.S.				0.05		1.0		0.01		0.05		0.05
Secondary D.W.S.												
E.P. Hazardous Waste Limit				5.0		100		1.0		5.0		5.0

D.W.S. = Drinking Water Standards

TABLE 1

Facility ALABAMA BY-PRODUCTS COMPANY COKE PLANT

	DATE	LEAD-TOTAL (ug/g)	MERCURY-E.P. (mg/l)	MERCURY-TOTAL (ug/g)	SELENIUM-E.P. (mg/l)	SELENIUM-TOTAL (ug/g)	SILVER-E.P. (mg/l)	SILVER-TOTAL (ug/g)	CYANIDES-TOTAL (ug/g)			
Equalization Basin DSN 001	6/16/87	<50 <50	<.001 <.001	0.85 0.67	<.01 <.01	7.0 10	<.05 <.05	5 5	240			
Post Aeration Basin DSN 001	6/16/87	<50	<.001	<0.5 <0.5	<.01	6.0	<.05	<5	64			
Storm Runoff Basin DSN 002	6/16/87	<50	<.001	<0.5 <0.5	<.01	1.0	<.05	<5	260			
Primary D.W.S.			0.002		0.01		0.05					
Secondary D.W.S.												
E.P. Hazardous Waste Limit			0.2		1.0		5.0					

D.W.S. = **Drinking Water Standards**

P.O. Box 10246
Birmingham, Alabama 35202

Telephone: 205 849-1300
Telex: 82-1269

[redacted] Reference No. 20

ABC COKE

DECEMBER 20, 1989

Mrs. Alicia A. Finch
Hazardous Waste Branch
Land Division
Alabama Department of Environmental Management
1751 Cong. W. L. Dickinson Drive
Montgomery, AL

Dear Mrs. Finch

Please find attached The Hazardous Waste Manifests you requested from ABC Coke. If I can be of further assistance please give me a call at 849-1338.

Sincerely,

ABC COKE DIVISION

S.W. Morgan
Environmental Engineer

Attachments

cc: W.M. Poling
SM/sm

DEC 1989
RECEIVED

Docket 19

REPORT ANY UNRECOVERED D... CHARGE EQUAL TO OR IN EXCESS OF EACH HAZARDOUS WASTE ASSIGNED "RQ" VALUE TO NATIONAL RESPONSE CENTER
800—424-8802

REPO... BLE QUANTITY VALUE
1 = 5000 LBS. 4 = 10 LBS.
2 = 1000 LBS. 5 = 1 LB.
3 = 100 LBS.

CHEM TREC	= 800—424-9300
EPA HOTLINE	= 800—424-9346
CDC POISON CENTER	= 404—635-5313
DOT	= 202—426-1830

PLACARDS PROVIDED

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

FORM APPROVED, OMB NO. 2050-0039, EXPIRES 9-30-88

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. A L D 0 0 0 8 2 3 1 7 9 — Manifest Document No.
2. Page 1 of 1 — Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
A.B.C. Coke Division, Drummond Company, Inc.
P. O. Box 170189, Birmingham, AL 35217

4. Generator's Phone (205) 849-1351

A. State Manifest Document Number: FTP 1987795
B. State Generator's ID:

5. Transporter 1 Company Name: Robbie D. Wood Trucking Company
6. US EPA ID Number: A L D 0 6 7 1 7 2 5 0 1
C. State Transporter's ID:
D. Transporter's Phone:

7. Transporter 2 Company Name: N/A
8. US EPA ID Number:
E. State Transporter's ID:
F. Transporter's Phone:

9. Designated Facility Name and Site Address
ALLIED CORPORATION
FAIRFIELD PLANT
1327 ERIE STREET
BIRMINGHAM, AL 35224
10. US EPA ID Number: A L D 0 3 1 4 9 9 8 3 3
G. State Facility's ID:
H. Facility's Phone: (205) 787-8605

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. Hazardous Waste, Liquid ORM-E N.O.S. NA9189 Decanter Tank Tar Sludge					
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
N/A Accumulation Date 12-20-88

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

Unless I am a small quantity generator who has been exempted by statute or regulation from the duty to make a waste minimization certification under Section 3002(b) of RCRA, I also certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and I have selected the method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment.

GENERATOR

Printed/Typed Name: David E. Stafford
Signature:
Month Day Year: 3/3/88

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name:
Signature:
Date — Month Day Year:

18. Transporter 2 Acknowledgement or Receipt of Materials
Printed/Typed Name:
Signature:
Date — Month Day Year:

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Date

STATE OF ARKANSAS
Department of Pollution Control and Ecology
P. O. Box 9583 Little Rock, Arkansas 72219
Telephone 501-562-7444

Please print or type. *(Form designed for use on elite (12-pitch) typewriter.)*

Form Approved. OMB No. 2050-0039. Expires 9-30-88

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. A L D 0 0 0 8 2 3 1 7 9 — Manifest Document No. 658914

2. Page 1 of 1 — Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
A.B.C. Coke Division, Drummond Company, Inc.
Old Huntsfield Rd.
Birmingham, Alabama 35202

4. Generator's Phone (205) 849-1342

A. State Manifest Document Number: AR-265894

B. State Generator's ID:

5. Transporter 1 Company Name: Delta Environmental, Inc.

6. US EPA ID Number: A L D 9 8 1 4 6 9 4 3 0

C. State Transporter's ID: H369 (PC-1041)

D. Transporter's Phone: 205-336-3451

7. Transporter 2 Company Name:

8. US EPA ID Number:

E. State Transporter's ID:

F. Transporter's Phone:

9. Designated Facility Name and Site Address
USEPA Combustion Research Facility
c/o MCTR Bldg. 45
Jefferson, Arkansas 72079

10. US EPA ID Number: A R 6 1 4 0 0 9 0 0 0 6

G. State Facility's ID: permit 7HR-1

H. Facility's Phone: 501-541-0004

11. US DOT Description *(Including Proper Shipping Name, Hazard Class, and ID Number)*	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. Hazardous waste liquid N.O.S. NA9189 ORM-E RQ(K087)	002	DM	0011	G	K087
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above: Tar bottoms

K. Handling Codes for Wastes Listed Above: In case of emergency or spill contact response person Mr. R.W. Ross, II at 501-541-0004

if no alternate TSDF, return to generator

15. Special Handling Instructions and Additional Information
In case of spill or emergency concact response person Mr. R.W. Ross, II at 501-541-0004
Avoid skin contact A/D 10/16/87

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations and Arkansas state regulations.
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Month	Day	Year
DAVID E. STAFFORD	David E Stafford	10	14	88

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
Kenny KOEHN	Kenny Koehn	10	14	88

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month	Day	Year
JOHANNES LEE		10	15	88

GENERATOR | TRANSPORTER | FACILITY

EPA Form 8700-22 (Rev. 9-86) Previous edition is obsolete.

STATE OF ARKANSAS
Department of Pollution Control and Ecology
P. O. Box 9583 Little Rock, Arkansas 72219
Telephone 501-562-7444

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039. Expires 9-30-88

AR 6-87

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. AIL|D|0|0|0|8|2|3|1|1|7|9 Manifest Document No. 16518915
2. Page 1 of 1
Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
A.B.C. Coke Division, Drummond Company, Inc.
Old Huntsfield Rd.
Birmingham, Alabama 35202
4. Generator's Phone (205) 849-1342

A. State Manifest Document Number AR- 265895
B. State Generator's ID

5. Transporter 1 Company Name: Delta Environmental, Inc
6. US EPA ID Number: |A|L|D|9|8|1|4|6|9|4|3|0
C. State Transporter's ID: H369 (PC-1041)
D. Transporter's Phone: 205-336-8451

7. Transporter 2 Company Name
8. US EPA ID Number
E. State Transporter's ID
F. Transporter's Phone

9. Designated Facility Name and Site Address
USEPA Combustion Research Facility
c/o NCTR Bldg 45
Jefferson, Arkansas 72079
10. US EPA ID Number: |A|R|6|1|4|0|0|9|0|0|0|6
G. State Facility's ID: permit 7HR-1
H. Facility's Phone: 501-541-0004

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. Hazardous waste liquid N.O.S. NA9189 ORM-E RQ(K087)	002	DM	00110	G	K087
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
Tar bottoms
if no alternate TSDF, return to generator

K. Handling Codes for Wastes Listed Above
In case of spill or emergency contact response person Mr. R.W. Ross, II at 501-541-0004

15. Special Handling Instructions and Additional Information
In case of emergency or spill contact response person Mr. R.W. Ross, II at 501-541-0004
Avoid skin contact. A/D 10/16/87

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations and Arkansas state regulations.
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

GENERATOR

Printed/Typed Name: DAVID E. STAFFORD
Signature: David E. Stafford
Month Day Year: 10/14/88

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Kenny Koehn
Signature: Kenny Koehn
Month Day Year: 10/14/88

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name
Signature
Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name: JOHANNES LEE
Signature
Month Day Year: 10/15/88

EPA Form 8700-22 (Rev. 9-86) Previous edition is obsolete.

DISTRIBUTION: ORIGINAL TO ARKANSAS DEPARTMENT OF POLLUTION CONTROL AND ECOLOGY AT END OF MONTH

STATE OF ARKANSAS
Department of Pollution Control and Ecology
P. O. Box 9583 Little Rock, Arkansas 72219
Telephone 501-562-7444

Please print or type. *(Form designed for use on elite (12-pitch) typewriter.)*

Form Approved. OMB No. 2050-0039. Expires 9-30-88

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. ALD010018213 — Manifest Document No. 165893
2. Page 1 of 1 — Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
A.B.C. Coke Division, Drummond Company, Inc.
Old Huntsfield Rd.
Birmingham, Alabama 35202
4. Generator's Phone (205) 849-1342

A. State Manifest Document Number: AR- 265893
B. State Generator's ID:

5. Transporter 1 Company Name: Delta Environmental, Inc.
6. US EPA ID Number: ALD981464300
C. State Transporter's ID: H369 (PC-1041)
D. Transporter's Phone: 205-336-8451

7. Transporter 2 Company Name:
8. US EPA ID Number:
E. State Transporter's ID:
F. Transporter's Phone:

9. Designated Facility Name and Site Address
USEPA Combustion Research Facility
c/o NCTR Bldg. 45
Jefferson, Arkansas 72079
10. US EPA ID Number: AR6140090006
G. State Facility's ID: permit 7HR-1
H. Facility's Phone: 501-541-0004

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. Hazardous Waste Liquid N.O.S. NA9189 ORM-E RQ(K087)	002	DM	00110	G	K087
b.					
c.					
d.					

RECEIVED
JAN 18 1988
A. B. C.
ENV. CONTROL

J. Additional Descriptions for Materials Listed Above
Tar bottoms

K. Handling Codes for Wastes Listed Above
In case of spill or emergency contact response person: Mr. R.W. Ross, II at ~~501-541-0004~~ 501-541-0004

if no alternate TSDF, return to generator

15. Special Handling Instructions and Additional Information
In case of spill or emergency concact response person Mr. R.W. Ross, II at 501-541-0004
Avoid skin contact A/D 10/16/87

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations and Arkansas state regulations.
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Printed/Typed Name	Signature	Month	Day	Year
DAVID E. STAFFORD	David E. Stafford	10	16	87

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
Kenny Kokhn	Kenny Kokhn	10	05	88

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month	Day	Year
JOHANNES LEE	Johannes Lee	10	06	88

EPA Form 8700-22 (Rev. 9-86) Previous edition is obsolete.

REPORT ANY UNRECOVERED DISCHARGE EQUAL TO OR IN EXCESS OF EACH HAZARDOUS WASTE ASSIGNED "RQ" VALUE TO NATIONAL RESPONSE CENTER 800—424-8802	REPORTABLE QUANTITY VALUE 1 = 5000 LBS. 2 = 1000 LBS. 3 = 100 LBS. 4 = 10 LBS. 5 = 1 LB.	CHEM TREC = 800—424-9300 EPA HOTLINE = 800—424-9346 CDC POISON CENTER = 404—635-5313 DOT = 202—426-1830	PLACARDS PROVIDED

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) FORM APPROVED. OMB NO. 2050-0039. EXPIRES 9-30-88

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. A L D 0 0 2 8 2 1 7 [illegible] Manifest Document No.

2. Page 1 of [illegible] Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
A.S.C. Coke Division, Drummond Company, Inc.
P.O. Box 170189, Birmingham, AL 35217

4. Generator's Phone (205) 849-1250

A. State Manifest Document Number: FTP 1987794

B. State Generator's ID:

5. Transporter 1 Company Name: Bobbie D. Wood Trucking Company

6. US EPA ID Number: [illegible]

C. State Transporter's ID:

D. Transporter's Phone:

7. Transporter 2 Company Name: N/A

8. US EPA ID Number:

E. State Transporter's ID:

F. Transporter's Phone:

9. Designated Facility Name and Site Address
ALLIED CORPORATION
FAIRFIELD PLANT
1327 ERIE STREET
BIRMINGHAM, AL 35224

10. US EPA ID Number: A L D 0 3 1 4 9 9 8 3 3

G. State Facility's ID:

H. Facility's Phone: (205) 787-8605

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. Hazardous Waste, Liquid ORM-E N.O.S. NA0190 Decanter Tank Tar Sludge	[illegible]				[illegible]
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
N/A Accumulation Date 11-20-87

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

Unless I am a small quantity generator who has been exempted by statute or regulation from the duty to make a waste minimization certification under Section 3002(b) of RCRA, I also certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and I have selected the method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment.

GENERATOR

Printed/Typed Name: David E. Stafford | Signature | Month Day Year

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials | Date

Printed/Typed Name | Signature | Month Day Year

18. Transporter 2 Acknowledgement or Receipt of Materials | Date

Printed/Typed Name | Signature | Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19. | Date

STATE OF ARKANSAS
Department of Pollution Control and Ecology
P. O. Box 9583 Little Rock, Arkansas 72219
Telephone 501-562-7444

1

Please print or type. *(Form designed for use on elite (12-pitch) typewriter.)*

Form Approved. OMB No. 2050-0039. Expires 9-30-88

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. A L D 0 0 0 8 2 3 1 7 9 — Manifest Document No. 9 7 6 2 3

2. Page 1 of 1 — Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
ABC Coke Division, Drummond Company, Inc.
P.O. Box 170189, Birmingham, AL 35217

4. Generator's Phone (205) 849-1381

A. State Manifest Document Number: AR- 097623

B. State Generator's ID:

5. Transporter 1 Company Name: Delta Environmental, Inc.

6. US EPA ID Number: A L D 9 8 1 4 6 9 4 3 0

C. State Transporter's ID: H367 (PC-1041)

D. Transporter's Phone: 205-336-8451

7. Transporter 2 Company Name: N/A

8. US EPA ID Number:

E. State Transporter's ID:

F. Transporter's Phone:

9. Designated Facility Name and Site Address
USEPA Combustion Research Facility
c/o NCTR Bldg. 45
Jefferson, Arkansas 72079

10. US EPA ID Number: A R 6 1 4 0 0 9 0 0 0 6

G. State Facility's ID: PERMIT 7HR-1

H. Facility's Phone: 501-541-0004

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. Hazardous Waste liquid N.O.S. NA9189 ORM-E RQK087	0 0 4	D M	0 0 2 2 0	G	K087
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
tar bottoms

if no alternate TSDF, return to generator

K. Handling Codes for Wastes Listed Above
In case of emergency or spill contact response person Mr. R.W. Ross II 501-541-0004

15. Special Handling Instructions and Additional Information
In case of spill or emergency contack response person Mr. R.W. Ross, II at 501-541-0004
Accumulation Date: 10/16/87

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations and Arkansas state regulations.
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GENERATOR — Printed/Typed Name: DAVID E. STAFFORD — Signature: David E. Stafford — Month Day Year: 1 2 1 0 8 7

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: GENE K PITTS — Signature: Gene K Pitts — Month Day Year: 1 2 1 0 8 7

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name: — Signature: — Month Day Year:

FACILITY

19. Discrepancy Indication Space
ACUREX WAS UNABLE TO RECEIVE THIS SHIPMENT BECAUSE IT WOULD HAVE PUT THEM OVER THEIR WEIGHT LIMIT, THEREFORE IT WAS RETURNED
Joe 12/18/87

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name: DAVID E. STAFFORD — Signature: David E. Stafford — Month Day Year: 1 2 1 6 8 7

EPA Form 8700-22 (Rev. 4-85) Previous edition is obsolete.

STATE OF ARKANSAS
Department of Pollution Control and Ecology
P. O. Box 9583 Little Rock, Arkansas 72219
Telephone 501-562-7444

1

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Form Approved. OMB No. 2050-0039. Expires 9-30-88

AR 8-86 (9-88)

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: A L D 0 0 0 8 2 3 1 7 9 0 9 7 6 22
Manifest Document No.:
2. Page 1 of 1
Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
A.B.C. Coke Division, Drummond Company, Inc.
P.O. Box 170189, Birmingham, Alabama 35217

4. Generator's Phone (205) 849-1381

A. State Manifest Document Number: AR- 097622
B. State Generator's ID:

5. Transporter 1 Company Name: Delta Environmental, Inc.
6. US EPA ID Number: A L D 9 8 1 4 6 9 4 3 0
C. State Transporter's ID: H369 (PC-1041)
D. Transporter's Phone: 205-336-8451

7. Transporter 2 Company Name: N/A
8. US EPA ID Number:
E. State Transporter's ID:
F. Transporter's Phone:

9. Designated Facility Name and Site Address
USEPA Combustion Research Facility
c/o NCTR Bldg. 45
Jefferson, Arkansas 72079
10. US EPA ID Number: A R 6 1 1 4 0 0 9 0 0 0 6
G. State Facility's ID: PERMIT 7HR-1
H. Facility's Phone: 501-541-0004

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. Hazardous waste liquid N.O.S. NA9189 ORM-E, RQK087	004	DM	00220	G	K087
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
tar bottoms

if no alternate TSDF, return to generator

K. Handling Codes for Wastes Listed Above
In case of emergency or spill contact response person Mr. R.W. Ross II 501-541-0004

15. Special Handling Instructions and Additional Information
Incase of emergency or spill contact response person Mr. R.W. Ross, II at 501-541-0004
Accumulation Date 10-16-87

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations and Arkansas state regulations.
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GENERATOR

Printed/Typed Name	Signature	Month	Day	Year
David E. Stafford	David E Stafford	11	20	87

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
THOMAS R WEST	Thom R West	12	10	87

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

FACILITY

19. Discrepancy Indication Space
C. & G. ENTERED BY J.LEE

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month	Day	Year
JOHANNES LEE	Johannes	12	21	87

EPA Form 8700-22 (Rev. 4-85) Previous edition is obsolete.

STATE OF ARKANSAS
Department of Pollution Control and Ecology
P. O. Box 9583 Little Rock, Arkansas 72219
Telephone 501-562-7444

1

Please print or type. *(Form designed for use on elite (12-pitch) typewriter.)*

Form Approved. OMB No. 2050-0039. Expires 9-30-88

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. A L D 0 0 0 8 2 3 1 7 9 | Manifest Document No. 9 7 6 2 4

2. Page 1 of 1

Information in the shaded areas is not required by Federal law.

GENERATOR

3. Generator's Name and Mailing Address
A.B.C. Coke Division, Drummond Company, Inc.
P.O. Box 170189
Birmingham, Alabama 35217
4. Generator's Phone (205) 949-1381

A. State Manifest Document Number: AR- 097624
B. State Generator's ID:

5. Transporter 1 Company Name: Delta Environmental, Inc.
6. US EPA ID Number: A L D 9 8 1 4 6 9 4 3 0
C. State Transporter's ID: H369 (PC-1041)
D. Transporter's Phone: 205-336-8451

7. Transporter 2 Company Name:
8. US EPA ID Number:
E. State Transporter's ID:
F. Transporter's Phone:

9. Designated Facility Name and Site Address
USEPA Combustion Research Facility
c/o NCTR, Bldg. 45
Jefferson, Arkansas 72079
10. US EPA ID Number: A R 6 1 4 0 0 9 0 0 0 6
G. State Facility's ID: Permit 7HR-1
H. Facility's Phone: 501-541-0004

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. Hazardous Waste liquid N.O.S. NA9189 ORM-E RQ(K087)	0 0 1	DM	0 0 0 5 5	G	K087
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
Tar Bottoms
if no alternate TSDF, return to generator

K. Handling Codes for Wastes Listed Above
In case of spill or emergency contact response person Mr. R.W. Ross, II at 501-541-000

15. Special Handling Instructions and Additional Information
In case of spill or emergency, ~~emergency~~ contact DD response person Mr. R.W. Ross, II at 501-541-0004
A.D. 10/16/87

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations and Arkansas state regulations.
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Printed/Typed Name: David E. Stafford
Signature: David E. Stafford
Month Day Year: 1 2 1 6 87

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Tommy E. Goulette
Signature: T. E. Goulette
Month Day Year: 12 16 87

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name:
Signature:
Month Day Year:

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name: JOHANNES LEE
Signature:
Month Day Year: 1 2 17 87

EPA Form 8700-22 (Rev. 4-85) Previous edition is obsolete.

REPORT ANY UNRECOVERED DISCHARGE EQUAL TO OR IN EXCESS OF EACH HAZARDOUS WASTE ASSIGNED "RQ" VALUE TO NATIONAL RESPONSE CENTER 800–424-8802	REPORTABLE QUANTITY VALUE 1 = 5000 LBS. 2 = 1000 LBS. 3 = 100 LBS. 4 = 10 LBS. 5 = 1 LB.	CHEM TREC = 800–424-9300 EPA HOTLINE = 800–424-9346 CDC POISON CENTER = 404–635-5313 DOT = 202–426-1830	PLACARDS PROVIDED

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

FORM APPROVED, OMB NO. 2050-0039, EXPIRES 9-30-88

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. A L D 0 0 0 8 2 3 1 7 8 Manifest Document No. 87-712

2. Page 1 of — Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
A.B.C. COKE DIVISION, DRUMMOND COMPANY, INC.
P. O. BOX 170189, Birmingham, Al. 35217

4. Generator's Phone (205) 849-1350

A. State Manifest Document Number: FTP 1987793

B. State Generator's ID:

5. Transporter 1 Company Name: Robbie D. Wood Trucking Company

6. US EPA ID Number: A L D 0 5 7 1 3 9 9 0 1

C. State Transporter's ID:

D. Transporter's Phone:

7. Transporter 2 Company Name: N/A

8. US EPA ID Number:

E. State Transporter's ID:

F. Transporter's Phone:

9. Designated Facility Name and Site Address
ALLIED CORPORATION
FAIRFIELD PLANT
1327 ERIE STREET
BIRMINGHAM, AL 35224

10. US EPA ID Number: A L D 0 3 1 4 9 9 8 3 3

G. State Facility's ID:

H. Facility's Phone: (205) 787-8605

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. Hazardous Waste, Liquid ORM-E N.O.S. NA9189 Decantor Tank Tar Sludge	0 0	TT	[illegible]		K087
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

N/A Accumulation Date 10-15-87

18. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

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GENERATOR

Printed/Typed Name: David A. Stafford — Signature — Month Day Year

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials — Date

Printed/Typed Name — Signature — Month Day Year

18. Transporter 2 Acknowledgement or Receipt of Materials — Date

Printed/Typed Name — Signature — Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19. — Date

Printed/Typed Name — Signature — Month Day Year

REPORT ANY UNRECOVERED CHARGE EQUAL TO OR IN EXCESS OF EACH HAZARDOUS WASTE ASSIGNED "RQ" VALUE TO NATIONAL RESPONSE CENTER 800–424-8802	REPORTABLE QUANTITY VALUE 1 = 5000 LBS. 4 = 10 LBS. 2 = 1000 LBS. 5 = 1 LB. 3 = 100 LBS.	CHEM TREC 800–424-9300 EPA HOTLINE 800–424-9346 CDC POISON CENTER 404–635-5313 DOT 202–426-1830	PLACARDS PROVIDED

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2000-0404. Expires 7-31-86

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. ALD000823179 — Manifest Document No.
2. Page 1 of — Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
A.B.C. Coke Division, Drummond Company, Inc.
P. O. Box 170189, Birmingham, AL 35217

4. Generator's Phone (205) 849-1351

A. State Manifest Document Number: FTP 1986346

B. State Generator's ID

5. Transporter 1 Company Name: Robbie D. Wood Trucking Co.
6. US EPA ID Number:

C. State Transporter's ID

D. Transporter's Phone

7. Transporter 2 Company Name: N/A
8. US EPA ID Number:

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address
ALLIED CORPORATION
FAIRFIELD PLANT
1327 ERIE STREET
BIRMINGHAM, AL 35224

10. US EPA ID Number: ALD031499833

G. State Facility's ID

H. Facility's Phone: (205) 787-8605

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. Hazardous Waste, Liquid ORM-E N.O.S. NA9189 Decanter Tank Tar Sludge	88				
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above

K. Handling Codes for Wastes Listed Above

ID. No. E 2

15. Special Handling Instructions and Additional Information

N/A Accumulation Date 9-10-87

AR 097622
10-16 E 2

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

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GENERATOR

Printed/Typed Name: David E. Stafford — Signature — Month Day Year

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials — Printed/Typed Name — Signature — Date: Month Day Year

18. Transporter 2 Acknowledgement or Receipt of Materials — Printed/Typed Name — Signature — Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19. — Signature — Date: Month Day Year

REPORT ANY UNRECOVERED D~~CHARGE~~ EQUAL TO OR IN EXCES OF EACH HAZARDOUS WASTE ASSIGNED "RQ" VALUE TO NATIONAL RESPONSE CENTER 800–424-8802	REPOF BLE QUANTITY VALUE 1 = 5000 LBS. 2 = 1000 LBS. 3 = 100 LBS. 4 = 10 LBS. 5 = 1 LB.	CHEM TREC 800–4 300 EPA HOTLINE = 800–424-9346 CDC POISON CENTER = 404–635-5313 DOT = 202–426-1830	PLACARDS PROVIDED

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2000-0404. Expires 7-31-86

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. A L D 0 0 0 [illegible] Manifest Document No. [illegible]
2. Page 1 of [illegible] Information in the shaded areas is not required by Federal law.

GENERATOR

3. Generator's Name and Mailing Address
A.B.C. Coke Division, Drummond Company, Inc.
P.O. Box 170189, Birmingham, AL 35217
4. Generator's Phone (205) 849-1350

A. State Manifest Document Number: FTP 1986345
B. State Generator's ID:

5. Transporter 1 Company Name: Robbie D. Wood Trucking Co.
6. US EPA ID Number: A L D 0 6 7 1 [illegible]
C. State Transporter's ID:
D. Transporter's Phone: [illegible]

7. Transporter 2 Company Name: N/A
8. US EPA ID Number:
E. State Transporter's ID:
F. Transporter's Phone:

9. Designated Facility Name and Site Address
ALLIED CORPORATION
FAIRFIELD PLANT
1327 ERIE STREET
BIRMINGHAM, AL 35224
10. US EPA ID Number: A L D 0 3 1 4 9 9 8 3 3
G. State Facility's ID:
H. Facility's Phone: (205) 787-8605

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. Hazardous Waste, Liquid ORM-E N.O.S. NA9189 Decanter Tank Tar Sludge	[illegible]	[illegible]	[illegible]		[illegible]
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above: [illegible] 10 16
K. Handling Codes for Wastes Listed Above:

15. Special Handling Instructions and Additional Information
N/A Accumulation Date 8/28/87

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

Unless I am a small quantity generator who has been exempted by statute or regulation from the duty to make a waste minimization certification under Section 3002(b) of RCRA, I also certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and I have selected the method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment.

Printed/Typed Name: David E. Stafford | Signature | Month Day Year

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name | Signature | Date: Month Day Year

18. Transporter 2 Acknowledgement or Receipt of Materials
Printed/Typed Name | Signature | Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Signature | Date: Month Day Year

REPORT ANY UNRECOVERED CHARGE EQUAL TO OR IN EXCESS OF EACH HAZARDOUS WASTE ASSIGNED "RQ" VALUE TO **NATIONAL RESPONSE CENTER** 800—424-8802	REPORTABLE QUANTITY VALUE 1 = 5000 LBS. 2 = 1000 LBS. 3 = 100 LBS. 4 = 10 LBS. 5 = 1 LB.	CHEM TREC = 800—424-9300 EPA HOTLINE = 800—424-9346 CDC POISON CENTER = 404—635-5313 DOT = 202—426-1830	PLACARDS PROVIDED

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2000-0404. Expires 7-31-86

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. | Manifest Document No. | 2. Page 1 of | Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
ABC Coke Division, Drummond Company, Incorporated
P.O. Box 170189, Birmingham, Alabama 35217

A. State Manifest Document Number: FTP 1986344

B. State Generator's ID

4. Generator's Phone (205) 849-1350

5. Transporter 1 Company Name: Robbie D. Wood Trucking Company | 6. US EPA ID Number | C. State Transporter's ID | D. Transporter's Phone

7. Transporter 2 Company Name: N/A | 8. US EPA ID Number | E. State Transporter's ID | F. Transporter's Phone

9. Designated Facility Name and Site Address
ALLIED CORPORATION
FAIRFIELD PLANT
1327 ERIE STREET
BIRMINGHAM, AL 35224
10. US EPA ID Number: ALD031499833
G. State Facility's ID
H. Facility's Phone: (205) 787-8605

11. US DOT Description *(Including Proper Shipping Name, Hazard Class, and ID Number)*	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. Hazardous Waste, Liquid ORM-E N.O.S. NA9189 Decanter Tank Tar Sludge					
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
N/A

Accumulation Date 6/3/87

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

Unless I am a small quantity generator who has been exempted by statute or regulation from the duty to make a waste minimization certification under Section 3002(b) of RCRA, I also certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and I have selected the method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment.

Printed/Typed Name: David E. Stafford | Signature | Month Day Year

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name | Signature | Date: Month Day Year

18. Transporter 2 Acknowledgement or Receipt of Materials
Printed/Typed Name | Signature | Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19. | Date

STATE OF ARKANSAS
Department of Pollution Control and Ecology
P. O. Box 9583 Little Rock, Arkansas 72219
Telephone 501-562-7444

1

Please print or type. *(Form designed for use on elite (12-pitch) typewriter.)*

Form Approved. OMB No. 2050-0039. Expires 9-30-88

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. A|L|D|0|0|0|8|2|3|1|7|9 — Manifest Document No. 0|0|0|0|3
2. Page 1 of 1 — Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
ABC Coke Division
Drummond Company, Inc.
Old Huntsville Road
Tarrant, Alabama 35217
4. Generator's Phone ( ) (205)849-1342

A. State Manifest Document Number: AR- 097613
B. State Generator's ID:

5. Transporter 1 Company Name: St. Joseph Motor Line
6. US EPA ID Number: |G|A|D|0|4|2|0|9|7|2|6|1
C. State Transporter's ID: H-59(PC758)
D. Transporter's Phone: 1-800-241-0423

7. Transporter 2 Company Name:
8. US EPA ID Number:
E. State Transporter's ID:
F. Transporter's Phone:

9. Designated Facility Name and Site Address
USEPA Combustion Research Facility
NCTR, Bldg. 45
Jefferson, AR. 72079
10. US EPA ID Number: |A|R|6|1|4|0|0|9|0|0|0|6
G. State Facility's ID: 7HR-1 AR6140090006
H. Facility's Phone: (501)541-0004

	11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.	Hazardous waste, liquid ORM-E N.O.S. NA9189, K087	003	DM	150	gal	K087
b.						
c.						
d.						

J. Additional Descriptions for Materials Listed Above
Three xxxx drums of K087 decanter tank sludge

K. Handling Codes for Wastes Listed Above

if no alternate TSDF, return to generator

15. Special Handling Instructions and Additional Information
In case of emergency or spill contact emergency response person R.W. Ross at (501)541-0004.
ACCUMULATION DATE (8-19-87 loaded) 6-3-87

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations and Arkansas state regulations.
Unless I am a small quantity generator who has been exempted by statute or regulation from the duty to make a waste minimization certification under Section 3002(b) of RCRA, I also certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and I have selected the method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment.

Printed/Typed Name: DAVID E. STAFFORD — Signature: David E. Stafford — Month Day Year: 08 28 87

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: GEORGE RILEY — Signature: George Riley — Month Day Year: 08 28 87

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name: — Signature: — Month Day Year:

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name: ROBERT W. ROSS, II — Signature: Robert W. Ross II — Month Day Year: 08 25 87

EPA Form 8700-22 (Rev. 4-85) Previous edition is obsolete.

THIS COPY MUST REMAIN WITH THE HAZARDOUS WASTE SHIPMENT ONCE DELIVERED, THE TREAT

REPORT ANY UNRECOVERED D... CHARGE EQUAL TO OR IN EXCES... OF EACH HAZARDOUS WASTE ASSIGNED "RQ" VALUE TO **NATIONAL RESPONSE CENTER** 800—424-8802

REPOF ...BLE QUANTITY VALUE
1 = 5000 LBS. 4 = 10 LBS.
2 = 1000 LBS. 5 = 1 LB.
3 = 100 LBS.

CHEM TREC 800—4...300
EPA HOTLINE = 800—424-9346
CDC POISON CENTER = 404—635-5313
DOT = 202—426-1830

PLACARDS PROVIDED

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2000-0404. Expires 7-31-86

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. A L D 0 0 0 8 2 3 1 7 9 | Manifest Document No. | 2. Page 1 of | Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
ABC Coke Division, Drummond Company, Incorporated
P. O. Box 170189, Birmingham, Alabama 35217
4. Generator's Phone (205) 849-1330

A. State Manifest Document Number FTP 1986343
B. State Generator's ID

5. Transporter 1 Company Name: Robbie D. Wood Trucking Company | 6. US EPA ID Number: A L D 0 6 7 1 3 ...
C. State Transporter's ID
D. Transporter's Phone ...

7. Transporter 2 Company Name: N/A | 8. US EPA ID Number
E. State Transporter's ID
F. Transporter's Phone

9. Designated Facility Name and Site Address
ALLIED CORPORATION
FAIRFIELD PLANT
1327 ERIE STREET
BIRMINGHAM, AL 35224
10. US EPA ID Number: A L D 0 3 1 4 9 9 8 3 3
G. State Facility's ID
H. Facility's Phone (205) 787-8605

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. Hazardous Waste, Liquid ORM-E N.O.S. NA9189 Decanter Tank Tar Sludge	...	...	...	...	...087
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
Four drums collected by William Myers of Varsar, Incorporated for incineration testing at EPA's facility in Arkansas. To be transferred to Allied Corporation for storage.

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
N/A

Accumulation date: 3-19-87

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

Unless I am a small quantity generator who has been exempted by statute or regulation from the duty to make a waste minimization certification under Section 3002(b) of RCRA, I also certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and I have selected the method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment.

Printed/Typed Name: David E. Stafford | Signature | Month Day Year

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name | Signature | Date Month Day Year

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name | Signature | Date Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Signature | Date Month Day Year

REPORT ANY UNRECOVERED D~~ISCHARGE~~ EQUAL TO OR IN EXCESS OF EACH HAZARDOUS WASTE ASSIGNED "RQ" VALUE TO NATIONAL RESPONSE CENTER 800—424-8802	REPOF ILE QUANTITY VALUE 1 = 5000 LBS. 2 = 1000 LBS. 3 = 100 LBS. 4 = 10 LBS. 5 = 1 LB.	CHEM TREC = 800—424-9300 EPA HOTLINE = 800—424-9346 CDC POISON CENTER = 404—635-5313 DOT = 202—426-1830	PLACARDS PROVIDED

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2000-0404. Expires 7-31-86

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. A L 0 0 0 8 2 3 1 7 — Manifest Document No. — 2. Page 1 of — Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
ABC COKE DIVISION, DRUMMOND COMPANY, INC.
P.O. Box 170189, Birmingham, Alabama 35217

4. Generator's Phone (205) 849-1330

A. State Manifest Document Number FTP 1986342

B. State Generator's ID

5. Transporter 1 Company Name: BOBBIE D. WOOD TRUCKING CO. — 6. US EPA ID Number: A L D 0 6 2 1 1 9 6 4 — C. State Transporter's ID — D. Transporter's Phone

7. Transporter 2 Company Name: N/A — 8. US EPA ID Number — E. State Transporter's ID — F. Transporter's Phone

9. Designated Facility Name and Site Address
ALLIED CORPORATION
FAIRFIELD PLANT
1327 ERIE STREET
BIRMINGHAM, AL 35224

10. US EPA ID Number: A L D 0 3 1 4 9 9 8 3 3

G. State Facility's ID

H. Facility's Phone (205) 787-8605

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. HAZARDOUS WASTE, LIQUID, NOC.S., NA9188, CRI-E DECANTER TANK TAR SLUDGE	7	DM			K087
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above: N/A

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
N/A ACCUMULATION DATE 3/18/87

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

Unless I am a small quantity generator who has been exempted by statute or regulation from the duty to make a waste minimization certification under Section 3002(b) of RCRA, I also certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and I have selected the method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment.

GENERATOR

Printed/Typed Name: David E. Strafford — Signature — Month Day Year

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials — Printed/Typed Name — Signature — Date — Month Day Year

18. Transporter 2 Acknowledgement or Receipt of Materials — Printed/Typed Name — Signature — Date — Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19. — Date

REPORT ANY UNRECOVERED CHARGE EQUAL TO OR IN EXCESS OF EACH HAZARDOUS WASTE ASSIGNED "RQ" VALUE TO NATIONAL RESPONSE CENTER 800—424-8802	REPORTABLE QUANTITY VALUE 1 = 5000 LBS. 2 = 1000 LBS. 3 = 100 LBS. 4 = 10 LBS. 5 = 1 LB.	CHEM TREC = 800—424-9300 EPA HOTLINE = 800—424-9346 CDC POISON CENTER = 404—635-5313 DOT = 202—426-1830	PLACARDS PROVIDED

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2000-0404. Expires 7-31-86

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. A L D 0 0 0 8 2 3 1 7 9 — Manifest Document No.

2. Page 1 of — Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
ABC Coke Division, Drummond Co., Inc.
P. O. Box 170189, Tarrant, Ala. 35217

4. Generator's Phone (205) 849-1330

A. State Manifest Document Number FTP 1986165

B. State Generator's ID

5. Transporter 1 Company Name: Robbie D. Wood Trucking Co.

6. US EPA ID Number: A L D 0 6 7 1 3 8 8 9 1

C. State Transporter's ID

D. Transporter's Phone 788-8880

7. Transporter 2 Company Name: N/A

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address
ALLIED CORPORATION
FAIRFIELD PLANT
1327 ERIE STREET
BIRMINGHAM, AL 35224

10. US EPA ID Number: A L D 0 3 1 4 9 9 8 3 3

G. State Facility's ID

H. Facility's Phone (205) 787-8605

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. Hazardous Waste, Liquid Nos NA9189 ORM-E Decanter Tar Sludge	84	DM	8400	P	K087
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above: NA

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
Accumulation Date 1-15-87 ?

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

Unless I am a small quantity generator who has been exempted by statute or regulation from the duty to make a waste minimization certification under Section 3002(b) of RCRA, I also certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and I have selected the method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment.

Printed/Typed Name: C. R. Campbell — Signature — Month Day Year: 02 [illegible] 87

17. Transporter 1 Acknowledgement of Receipt of Materials — Date

Printed/Typed Name: LEONARD CAIN — Signature — Month Day Year: [illegible]

18. Transporter 2 Acknowledgement or Receipt of Materials — Date

Printed/Typed Name — Signature — Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19. — Date

GENERATOR

TRANSPORTER

FACILITY

REPORT ANY UNRECOVERED CHARGE EQUAL TO OR IN EXCESS OF EACH HAZARDOUS WASTE ASSIGNED "RQ" VALUE TO NATIONAL RESPONSE CENTER 800–424-8802	REPORTABLE QUANTITY VALUE 1 = 5000 LBS. 4 = 10 LBS. 2 = 1000 LBS. 5 = 1 LB. 3 = 100 LBS.	CHEM TREC = 800–424-9300 EPA HOTLINE = 800–424-9346 CDC POISON CENTER = 404–635-5313 DOT = 202–426-1830	PLACARDS PROVIDED

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2000-0404. Expires 7-31-86

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. A K D 0 0 0 8 2 3 1 7 9 | Manifest Document No. F 3 4 1 | 2. Page 1 of | Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
ABC Coke Division, Drummond Company, Inc.
P. O. Box 170189, Birmingham, Ala. 35217

4. Generator's Phone (205) 849-1330

A. State Manifest Document Number FTP 1986341

B. State Generator's ID

5. Transporter 1 Company Name: Robbie D. Wood Trucking Co. | 6. US EPA ID Number: A L D 0 6 7 1 2 0 3 0 1 | C. State Transporter's ID | D. Transporter's Phone

7. Transporter 2 Company Name: N/A | 8. US EPA ID Number | E. State Transporter's ID | F. Transporter's Phone

9. Designated Facility Name and Site Address
ALLIED CORPORATION
FAIRFIELD PLANT
1327 ERIE STREET
BIRMINGHAM, AL 35224

10. US EPA ID Number: A L D 0 3 1 4 9 9 8 3 3

G. State Facility's ID

H. Facility's Phone (205) 787-8605

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. Hazardous waste, liquid Nos NA 9189 ORM-E decanter tar sludge	55	DM	330	G	K087
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above: N/A

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
Accumulation date 3-9-87

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

Unless I am a small quantity generator who has been exempted by statute or regulation from the duty to make a waste minimization certification under Section 3002(b) of RCRA, I also certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and I have selected the method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment.

Printed/Typed Name: David E. Stafford | Signature: David E. Stafford | Month Day Year

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name | Signature | Date: Month Day Year

18. Transporter 2 Acknowledgement or Receipt of Materials
Printed/Typed Name | Signature | Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Signature | Date: Month Day Year

REPORT ANY UNRECOVERED CHARGE EQUAL TO OR IN EXCESS OF EACH HAZARDOUS WASTE ASSIGNED "RQ" VALUE TO NATIONAL RESPONSE CENTER 800—424-8802	REPORTABLE QUANTITY VALUE 1 = 5000 LBS. 2 = 1000 LBS. 3 = 100 LBS. 4 = 10 LBS. 5 = 1 LB.	CHEM TREC 800—[illegible]300 EPA HOTLINE = 800—424-9346 CDC POISON CENTER = 404—635-5313 DOT = 202—426-1830	PLACARDS PROVIDED

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2000-0404. Expires 7-31-86

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. A.L.D.0.0.0.8.2.3.1.7.1 — Manifest Document No. [illegible]
2. Page 1 of 1 — Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
ABC COKE DIVISION, DRUMMOND COMPANY, INC.
P. O. Box 170189, Birmingham, Alabama 35217
4. Generator's Phone (205) 849-1330

A. State Manifest Document Number: FTP 1986164
B. State Generator's ID:

5. Transporter 1 Company Name: ROBBIE D. WOOD TRUCKING CO.
6. US EPA ID Number: A.L.D.0.6.7.1.2.[illegible]
C. State Transporter's ID:
D. Transporter's Phone: 788-8[illegible]

7. Transporter 2 Company Name: N. A.
8. US EPA ID Number:
E. State Transporter's ID:
F. Transporter's Phone:

9. Designated Facility Name and Site Address
ALLIED CORPORATION
FAIRFIELD PLANT
1327 ERIE STREET
BIRMINGHAM, AL 35224
10. US EPA ID Number: A L D 0 3 1 4 9 9 8 3 3
G. State Facility's ID:
H. Facility's Phone: (205) 787-8605

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. Hazardous Waste, Liquid, NOO.S., NA9189, ORM-E Decanter Tank Tar Sludge 9189 for	60	[illegible]	[illegible]	[illegible]	K087
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above: N.A.

K. Handling Codes for Wastes Listed Above:

15. Special Handling Instructions and Additional Information
N.A. Accumulation Date 1-5-87

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

Unless I am a small quantity generator who has been exempted by statute or regulation from the duty to make a waste minimization certification under Section 3002(b) of RCRA, I also certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and I have selected the method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment.

Printed/Typed Name: David E. Stafford — Signature: [illegible] — Month Day Year: [illegible]

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials — Date
Printed/Typed Name: [illegible] — Signature: [illegible] — Month Day Year

18. Transporter 2 Acknowledgement or Receipt of Materials — Date
Printed/Typed Name — Signature — Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19. — Date
Printed/Typed Name — Signature — Month Day Year

REPORT ANY UNRECOVERED CHARGE EQUAL TO OR IN EXCESS OF EACH HAZARDOUS WASTE ASSIGNED "RQ" VALUE TO NATIONAL RESPONSE CENTER 800–424-8802	REPORTABLE QUANTITY VALUE 1 = 5000 LBS. 4 = 10 LBS. 2 = 1000 LBS. 5 = 1 LB. 3 = 100 LBS.	CHEM TREC = 800-[illegible]-9300 EPA HOTLINE = 800–424-9346 CDC POISON CENTER = 404–635-5313 DOT = 202–426-1830	PLACARDS PROVIDED

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2000-0404. Expires 7-31-86

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. A L D 0 0 0 8 2 3 1 7 9 — Manifest Document No. [illegible] — 2. Page 1 of — Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
ABC Coke Division, Drummond Company, Inc.
P. O. Box 170169, Birmingham, Ala. 35217
4. Generator's Phone (205) 849-1330

A. State Manifest Document Number: FTP 1986163
B. State Generator's ID:

5. Transporter 1 Company Name: Robbie D. Wood Trucking Company — 6. US EPA ID Number: A L D 0 6 7 1 3 [illegible] — C. State Transporter's ID: — D. Transporter's Phone: 744-[illegible]

7. Transporter 2 Company Name: N/A — 8. US EPA ID Number: — E. State Transporter's ID: — F. Transporter's Phone:

9. Designated Facility Name and Site Address
ALLIED CORPORATION
FAIRFIELD PLANT
1327 ERIE STREET
BIRMINGHAM, AL 35224
10. US EPA ID Number: A L D 0 3 1 4 9 9 8 3 3 — G. State Facility's ID: — H. Facility's Phone: (205) 787-8605

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. Hazardous Waste, Liquid NOS NA9189 ORM-E Decanter Tar Sludge	88	DT	[illegible]		K087
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above: N/A

K. Handling Codes for Wastes Listed Above:

15. Special Handling Instructions and Additional Information
Accumulation Date 12-05-86

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

Unless I am a small quantity generator who has been exempted by statute or regulation from the duty to make a waste minimization certification under Section 3002(b) of RCRA, I also certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and I have selected the method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment.

Printed/Typed Name: David E. Stafford — Signature: — Month Day Year

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials — Printed/Typed Name: [illegible] — Signature: — Date: Month Day Year

18. Transporter 2 Acknowledgement or Receipt of Materials — Printed/Typed Name: — Signature: — Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19. — Printed/Typed Name: — Signature: — Date: Month Day Year

June 24, 1985

MEMORANDUM

TO: Bernard B. Cox Jr.

THROUGH: James W. Neal

FROM: Clyde Sherer

RE: Part B Permit Meeting
Alabama By-Products Corporation (ABC)
Birmingham, Alabama

On Tuesday, June 18, 1985, a meeting was conducted at Alabama By-Products Corporation, Coke Plant near Tarrant City, Alabama. The purpose of this meeting was to discuss a pending Part B application for this facility. Representatives present at this meeting included Paul Conrad and Kurt Batsell with EPA's Atlanta Office; Jim Neal, Donnie Parrish, and Clyde Sherer with ADEM; and Moyer Edwards, ABC Environmental Resources Manager, and James Duren Jr., ABC Plant Manager.

The ABC Plant converts coal into coke and produces various by-products in the process. Among these is a tar product with a corresponding sludge from a decanting operation. The sludge is a toxic hazardous waste listed as K087 on EPA's hazardous waste list in 40 CFR 261.32. This sludge contains phenols and possible coal and coke fines. The sludge along with some hot tar is carried by a drag chain from the decanter tank to an open conical mixing tank which is approximately four feet in diameter at the top. The sludge is then mixed with tar from the product storage tank. After mixing the resultant mixture is processed back to the product storage tank for shipment to customers. In the past this sludge had been placed in a waste pile on the plant site. The exact location of this pile is questionable. On the plant site there is also an aeration pond, an equalization pond, and a holding pond which is fed by a ditch that collects surface run-off at the plant site. We observed these areas during our tour of the plant site.

EPS, Inc., during a previous site survey found hazardous waste constituents in soil samples taken from the drainage ditch, equalization pond, and Five Mile Creek, which receives wastewater discharged from the plant through an NPDES permit. The hazardous waste constituents found in soil samples from the drainage ditch exceeded 1200 ppm for 2 - Methyl 4,6 - Dinitrophenol. The soil material from the equalization pond had a concentration of 2800 ppm of 2 - Chlorophenol, 2600 ppm of 2,4 - Dichlorophenol, and 2400 ppm of 2 - Methyl 4,6 - Dinitrophenol.

In conclusion, EPA along with ADEM is reviewing the RCRA regulations to determine if the facility will need to have a permit for the coke sludge material. This determination is being made based on the manner in which the material is presently being mixed with tar in an open tank.

EPA has stated in Volume 50 Number 3, Friday, January 4,1985, of the Federal Register that the "Return of secondary materials to the original primary production process in which they are generated without first reclaiming them" may not involve waste management if part of a closed loop production process.

The ponds though containing hazardous constituents, may not be regulated since no listed wastes enter the ponds and no characteristic are evident.

CS/sjw
File: Part B
IW

July 15, 1985

ALABAMA BY-PRODUCTS CORPORATION

FOUNDRY COKE • COAL • COAL CHEMICALS

GENERAL OFFICES
FIRST NATIONAL-SOUTHERN NATURAL BUILDING
P. O. BOX 10246 BIRMINGHAM, ALABAMA 35202

PHONE (205) 250-5400
TELEX NO. 59-810

MOYER B. EDWARDS
DIRECTOR ENVIRONMENTAL CONTROL

[redacted]

Reference No. 22

March 12, 1984

Mr. Joe Downey
Alabama Department of Environmental Management
Land Division
State Capitol
Montgomery, Alabama 36130

Dear Mr. Downey:

Per our telephone discussion on Monday, this is to inform you that any decanter tar sludge generated at our coke facility is recycled to product and sold.

If you have any questions, please call me.

Sincerely,

Moyer B. Edwards
Director Environmental Control

MBE:rl
Attachment

ALABAMA BY-PRODUCTS CORPORATION

FOUNDRY COKE • COAL • COAL CHEMICALS

GENERAL OFFICES
FIRST NATIONAL-SOUTHERN NATURAL BUILDING
P. O. BOX 10246 BIRMINGHAM, ALABAMA 35202

PHONE (205) 250-5400
TELEX NO. 82-1269

MOYER B. EDWARDS
DIRECTOR ENVIRONMENTAL CONTROL

Reference No. 23

March 19, 1985

Mr. Joe Downey
Alabama Department of Environmental Management
Hazardous Waste Branch
Land Division
1751 Federal Drive
Montgomery, Alabama 36130

Dear Mr. Downey:

In keeping with our telephone conversation on March 18, 1985, this is to notify you that Alabama By-Products Corporation recycles decanter tar sludge back into product tar and thus has no quantity to report.

If there are any questions in regard to this, please do not hesitate to call.

Sincerely,

Moyer B. Edwards
Director Environmental Control

MBE:rl

File: Withdrawn / ABC

Docket 10

ALABAMA BY-PRODUCTS CORPORATION

FOUNDRY COKE • COAL • COAL CHEMICALS

GENERAL OFFICES
FIRST NATIONAL-SOUTHERN NATURAL BUILDING
P. O. BOX 10246 BIRMINGHAM, ALABAMA 35202

PHONE (205) 250-5400
TELEX NO. 59-810

MOYER B. EDWARDS
DIRECTOR ENVIRONMENTAL CONTROL

March 12, 1984

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Alabama Department of Environmental Management
Land Division
State Capitol
Montgomery, Alabama 36130

Dear Mr. Downey:

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If you have any questions, please call me.

Sincerely,

Moyer B. Edwards
Director Environmental Control

MBE:rl
Attachment

Docket 9

L Y AS 29 '83

RCRA MAINTENANCE FORM

ID # ALD 000823179 FACILITY NAME Tex By-Products Corp

F1 Notif. approval _____
Date notified _____
Permit app. approved _____
Date Part A r'cvd B
* Facility name _____
Notif. confidential _____
Part A confidential _____
Closure date _____

F2 Contact name & title _____
Contact telephone # _____
Modif. under const. _____
Commercial fac. indic. _____
Non-reg. fac. indic. _____

F3 Mailing address _____

F4 Mailing city _____ State ____ Zip _____

F5 * Facility address _____
* County name _____

F6 * Facility city _____ State ____ Zip _____
* County code ____
Drawings B Photos B District code _____
River basin code _____ Latitude _____ Longitude _____

F7 SIC _____ NEW SIC _____
_____ _____
_____ _____
_____ _____

F8 Facility operator name _____ Owner type _____
Activity codes: Gen ____ Trans ____ TSD A UIC ____
Transport mode: Air ____ Rail ____ Hwy ____ Water ____ Other ____
Owner/oper ind. ____ Facility status A RCRA permit status _____
Existance date B

F9

Type	Permit number	Type	New permit number
____	_____	____	_____
____	_____	____	_____
____	_____	____	_____
____	_____	____	_____
____	_____	____	_____

* This data can only be entered through the FINDS System. * Docket 8

Bob

Inspect / Alc Prod. Jeff Co

RCRA MAINTENANCE FORM

ID # ALD000823179 FACILITY NAME ALABAMA BY PRODUCTS CORP

F1 Notif. approval _____
Date notified _____
Permit app. approved _____
Date Part A r'cvd _____
* Facility name _____
Notif. confidential _____
Part A confidential _____
Closure date _____

F2 Contact name & title _____
Contact telephone # _____
Modif. under const. _____
Commercial fac. indic. _____
Non-reg. fac. indic. _____

F3 Mailing address _____

F4 Mailing city _____ State _____ Zip _____

F5 * Facility address ALABAMA ST & HUNTSVILLE RD
* County name _____

F6 * Facility city _____ State _____ Zip _____
* County code _____
Drawings _____ Photos _____ District code _____
River basin code _____ Latitude _____ Longitude _____

F7 SIC _____ NEW SIC _____
_____ _____
_____ _____
_____ _____

F8 Facility operator name _____ Owner type _____
Activity codes: Gen ___ Trans ___ TSD ___ UIC ___
Transport mode: Air ___ Rail ___ Hwy ___ Water ___ Other ___
Owner/oper ind. _____ Facility status _____ RCRA permit status _____
Existance date _____

F9

Type	Permit number	Type	New permit number
___	_____	___	_____
___	_____	___	_____
___	_____	___	_____
___	_____	___	_____
___	_____	___	_____

* This data can only be entered through the FINDS System. *

Reference No. 24

GEOHYDROLOGY AND SUSCEPTIBILITY OF MAJOR AQUIFERS TO SURFACE CONTAMINATION IN ALABAMA; AREA 4

By Michael Planert and James L. Pritchett, Jr.

U.S. GEOLOGICAL SURVEY

Water-Resources Investigations Report 88-4133

Prepared in cooperation with the

ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Tuscaloosa, Alabama

1989

CONTENTS

ILLUSTRATIONS

TABLES

GEOHYDROLOGY AND SUSCEPTIBILITY OF MAJOR AQUIFERS TO SURFACE CONTAMINATION IN ALABAMA; AREA 4

by Michael Planert and James L. Pritchett, Jr.

ABSTRACT

The U.S. Geological Survey, in cooperation with the Alabama Department of Environmental Management, is conducting a series of geohydrologic studies to delineate the major aquifers (those which provide water for public supplies) in Alabama, their recharge areas, and areas susceptible to contamination. This report summarizes these factors for two major aquifers in Area 4--Calhoun, Jefferson, St. Clair, Shelby, and Talladega Counties.

The major aquifers in the study area are the Knox-Shady of Cambrian-Ordovician age and the Tuscumbia-Fort Payne of Mississippian age. Highest yields from aquifers are associated with solution openings in carbonate rocks. Springs provide substantial amounts of water for municipal supply; Coldwater Spring provides an average of 17 million gallons per day to the city of Anniston.

All recharge areas for the aquifers are susceptible to contamination from land surface. Two conditions exist in the study area which may cause the aquifers to be highly susceptible to contamination on a local scale: fracturing of rock materials due to faulting and the production of a porous cherty soil through weathering. Where sinkholes are present there may be a direct connection between the land surface and the aquifer. Areas with sinkholes are considered to be extremely susceptible to contamination.

INTRODUCTION

The Alabama Department of Environmental Management (ADEM) is developing a comprehensive program in Alabama to protect ground water defined by the U.S. Environmental Protection Agency (EPA) as "Class I and II" from surface contamination (U.S. Environmental Protection Agency, 1984). The U.S. Geological Survey, in cooperation with ADEM, is conducting a series of geohydrologic studies to delineate recharge areas of the major aquifers in Alabama and areas susceptible to contamination. This report summarizes these factors for major aquifers in Area 4--Calhoun, Jefferson, St. Clair, Shelby, and Talladega Counties (fig. 1).

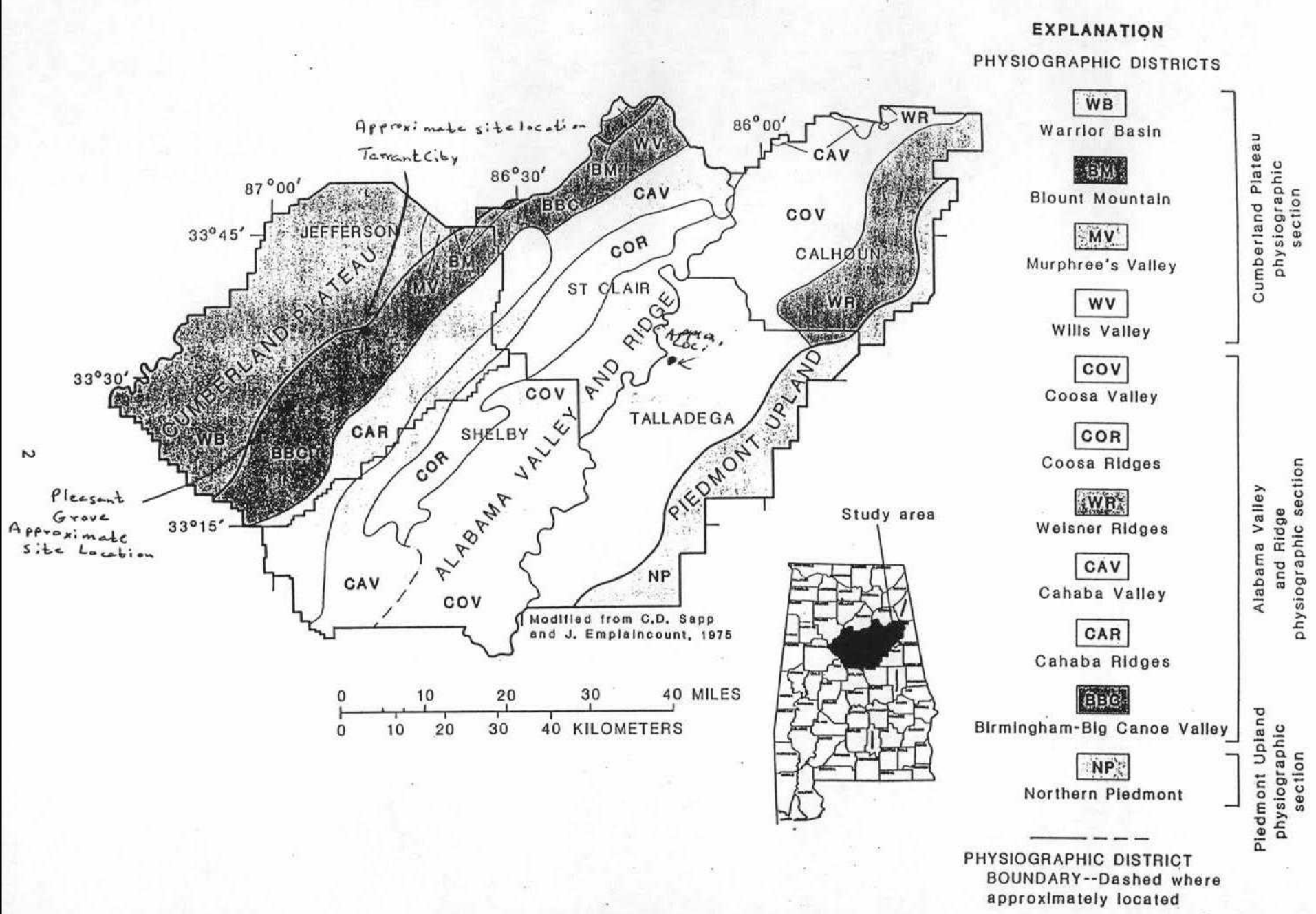

Figure 1.--Physiography of the study area.

Purpose and Scope

The purpose of this report is to describe the geohydrology of the major aquifers in Area 4 and their susceptibility to contamination from the surface. Geologic and hydrologic data compiled as part of previous investigations provided about 90 percent of the data used to evaluate the major aquifers in the area. All wells and springs used for municipal and rural water supplies were inventoried, and water levels were measured in wells where possible. Data on water use were compiled during the well inventory. Water-level data were used to compile generalized potentiometric maps of the aquifers. Areas susceptible to contamination from the surface were delineated partly from topographic maps and other available data, and partly from field investigation.

Location and Physical Features of the Area

The study area is in north central Alabama and comprises 3,929 mi^2 (square miles). The study area has a moist, temperate climate and a mean annual rainfall of about 53 inches per year (U.S. Department of Commerce, 1985). Forest land covers about 72 percent of the area, agricultural acreage 17 percent, and the remainder of the area is mostly urban or wetland acreage. The 1980 population statistics along with predictions for 1990 indicate that about one million people inhabit the study area (Alabama Department of Economic and Community Affairs, 1984). Birmingham comprises the largest urban area with a population in 1980 of about 300,000 people; other major cities in the study area include Anniston, Sylacauga, and Talladega (plate 1).

Physiography

The study area includes parts of three physiographic sections: the Cumberland Plateau, the Alabama Valley and Ridge, and the Piedmont Upland (Fenneman, 1938). Figure 1 shows the locations of these three sections as well as the districts within each of them (Sapp and Emplaincourt, 1975).

The Cumberland Plateau section extends from western Jefferson County to the most western and northern parts of St. Clair County. All but the northeastern part of west Jefferson County is in the Warrior Basin district where altitudes range from 350 feet near the Black Warrior River to over 700 feet along several ridges in the basin. Drainage within the basin is primarily west to Locust Fork of the Black Warrior River and to the Black Warrior River. The northeastern part of west Jefferson County and the northwesternmost corner of St. Clair County are in the Murphree's Valley and Blount Mountain districts where altitudes range from 700 to 1,100 feet. The northernmost area of St. Clair County is in the Wills Valley and Blount Mountain districts where altitudes range from 800 to 1,500 feet. Drainage in these three mountain and valley districts is also primarily west to Locust Fork of the Black Warrior River.

The Alabama Valley and Ridge section extends across the majority of the study area and includes several valley and ridge districts. From west to east, the districts are the Birmingham-Big Canoe Valley, the Cahaba Ridges, the Cahaba Valley, the Coosa Ridges, the Coosa Valley, and the Weisner Ridges. Altitudes in the Birmingham-Big Canoe Valley range from about 500 feet in Jefferson County to about 600 feet in St. Clair County. Drainage is generally west to southwest into the Black Warrior River tributaries across Jefferson County; St. Clair County drainage is primarily east to Big Canoe Creek which flows to the Coosa River.

The Cahaba Ridges trend northeast through parts of Shelby, Jefferson, and St. Clair Counties. Altitudes in the Cahaba Ridges range from about 300 feet in Shelby County to about 1,100 feet in St. Clair County. Drainage from the ridges is southeast to the Cahaba River which flows along the eastern edge of the ridges. The Cahaba Valley district lies to the east of the Cahaba River and extends northward into St. Clair County east of the Birmingham-Big Canoe Valley district. Altitudes in the Cahaba Valley range from 300 feet in Shelby County to 700 feet in St. Clair County and drainage is generally west to the Cahaba River.

The Coosa Ridge district lies east of the Cahaba Valley and consists mainly of the Double Oak Mountains with altitudes as high as 1,400 feet. Westward drainage off the mountains is generally into Cahaba River tributaries; eastward drainage is primarily into Coosa River tributaries. The Coosa Valley district extends from the Coosa Ridge district on the west to the Weisner Ridge district and Piedmont Upland section on the east. Altitudes of about 400 and 500 feet dominate the Coosa Valley west of the Coosa River; but east of the Coosa River, altitudes in the valley range from about 500 feet to as much as 1,540 feet. Drainage from the Coosa Valley district is primarily into the Coosa River.

The Weisner Ridge district, located in the northeastern corner of Talladega County and the eastern part of Calhoun County, consists primarily of the Choccolocco and Coldwater Mountains. Altitudes are as high as 2,100 feet on the crest of Choccolocco Mountain. Drainage from the Weisner Ridge district is into tributaries of the Coosa River, namely Choccolocco, Terrapin, and Tallasseehatchee Creeks.

The Northern Piedmont district of the Piedmont Upland section is located in southeastern Talladega County and most of southeastern Calhoun County. Altitudes range from about 1,900 feet on Talladega Mountain to 500 feet in the valleys to the west. Drainage is primarily into tributaries of the Coosa River.

Previous Investigations

Several published reports on the structure, stratigraphy, and lithology of the study area are of note. Adams and others (1926) provides the descriptive base of most geologic studies in Alabama since its publication. Johnston (1933) presents a comprehensive account of the ground-water resources in the Paleozoic rocks of northern Alabama. Drahovzal and Neathery (1971) updated

and revised descriptions of the Middle and Upper Ordovician stratigraphy of the Alabama Appalachians. Thomas (1972) contains a comprehensive description of the Mississippian stratigraphy of Alabama. Neathery (1973) compiled observations of the lithologic relations within the Talladega Group of Alabama. Kidd and Shannon (1978) defined geologic structures in Jefferson County; Thomas (1985) compiled balanced structural sections of northern Alabama.

Reports on ground-water resources, which include geologic mapping and well inventories, have been published for each of the counties in the study area and are listed below:

Calhoun	-	Warman and Causey, 1962
Jefferson	-	Moffett and Moser, 1978
St. Clair	-	Causey, 1963
Shelby	-	Shamburger and Harkins, 1980
Talladega	-	Causey, 1965

These reports provide a broad and useful base of geologic and hydrologic information. In addition to the reports listed above, Davis (1980) contains periodic measurements of ground-water levels in the area from 1952 to 1977. These and other useful ground-water publications are listed in the selected references.

Acknowledgments

Acknowledgment is made to those persons who contributed to the field investigations and data compilation involved in preparation of this report. The assistance of waterworks managers and supervisors of the municipalities within the study area who furnished information on well locations, construction, and water use is greatly appreciated. Appreciation is also extended to Ed Osborne and Paul Moser of the Geological Survey of Alabama who provided updated geologic and ground-water information from unpublished reports on the area.

GEOLOGY

The geology of the study area, along with the diverse physiography, is quite complex due to large-scale tectonic activity, most of which took place during the Appalachian orogeny. Most of the study area is in the Appalachian fold and thrust belt which consists of shallow marine to deltaic Paleozoic sedimentary strata that were deposited on a continental platform (Thomas, 1985). Paleozoic metasedimentary rocks crop out along the southeastern border of the study area, and are separated from the fold and thrust belt by the Talladega fault (fig. 2).

Structure

Strata throughout the study area generally maintain a northeast-southwest strike, and dips are typically trending to the southeast (fig. 3). Across strike, the fold and thrust belt is characterized by three structural domains (Thomas, 1985). Broad flat-bottomed synclines and narrow asymmetric anticlines comprise the northwest domain. The central domain is characterized by folds associated with large thrust-fault ramps. The southeastern domain is characterized by low-angle, broad, multiple-level thrust sheets (Thomas, 1985).

The northwest domain, which coincides with the Cumberland Plateau physiographic section, is represented by the Black Warrior foreland basin (Warrior coal field). The basin is generally underlain by gently dipping rocks of Pennsylvanian age (Pottsville Formation), although several structures are present (Kidd and Shannon, 1978). These structural features are not depicted on the figures because they are of small scale.

The central domain of the fold and thrust belt coincides with the Alabama Valley and Ridge physiographic section and consists of sedimentary rocks that range in age from Cambrian to Pennsylvanian (Kidd and Shannon, 1978). The structures are a series of anticlines and synclines that form northeast-southwest-trending ridges and valleys. Major structures include the Birmingham anticlinorium, Cahaba synclinorium, and the Coosa synclinorium (fig. 3).

The Birmingham anticlinorium is defined along its west-northwestern limb by the Opossum Valley thrust fault which has a displacement of 7,000 feet or more (Kidd and Shannon, 1978). The Cahaba synclinorium is bounded on the northwest by the Birmingham anticlinorium and on the southeast by the Coosa synclinorium. The Helena fault marks the boundary between the Coosa and Cahaba synclinoriums and involves displacement of 10,000 feet or more (Kidd and Shannon, 1978). The Helena is the most extensive fault in the central domain and generally juxtaposes the Cambrian Rome Formation on the east and the Pennsylvanian Pottsville Formation on the west (fig. 2).

The southeastern domain and the Piedmont Upland physiographic section are separated by the Talladega thrust fault (fig. 2). Greenschist metasedimentary rocks of the Talladega slate belt crop out east of the fault and override the trailing part of the fold and thrust belt (Thomas, 1985).

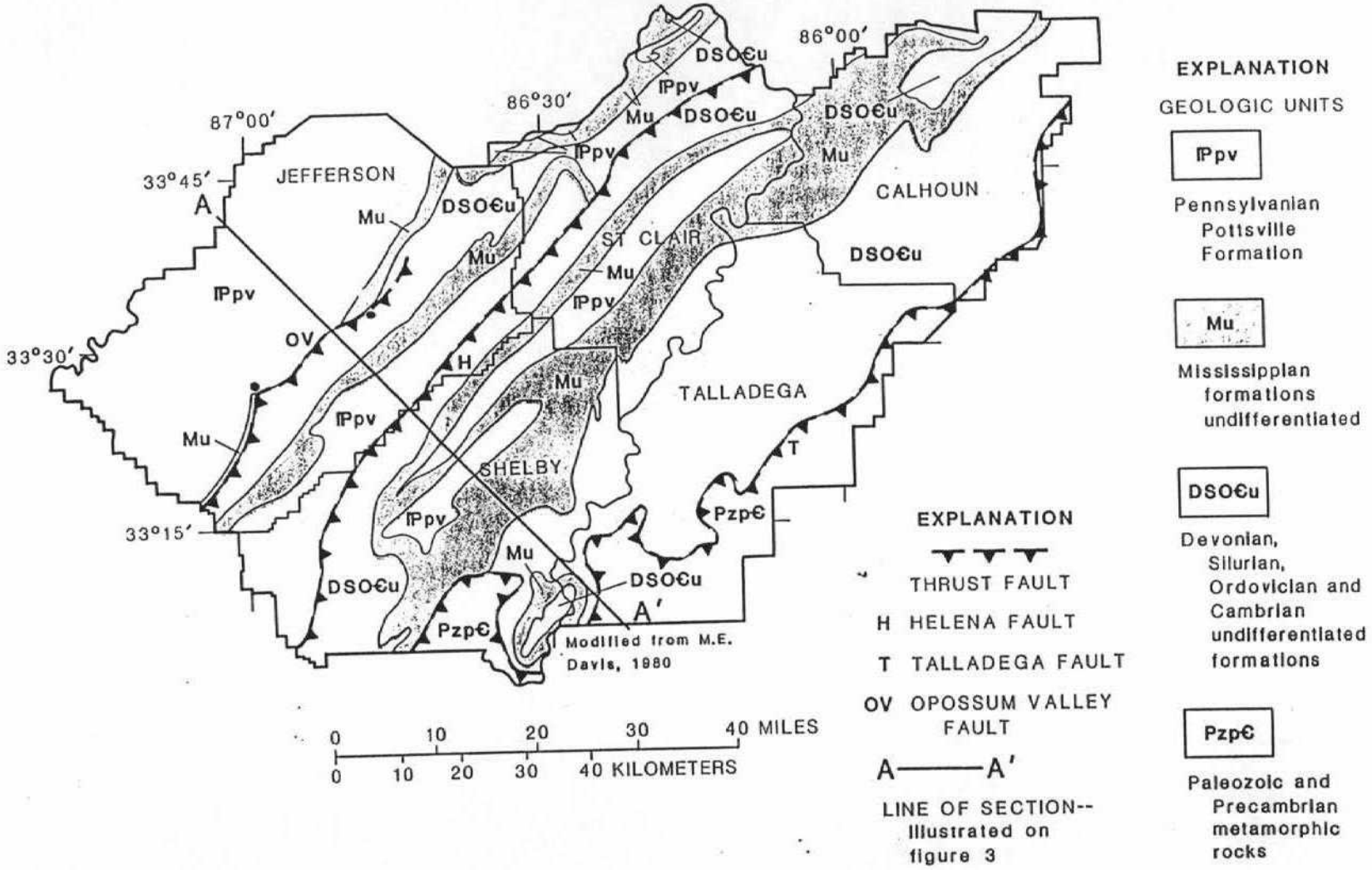

Figure 2.--Generalized geology of the study area.

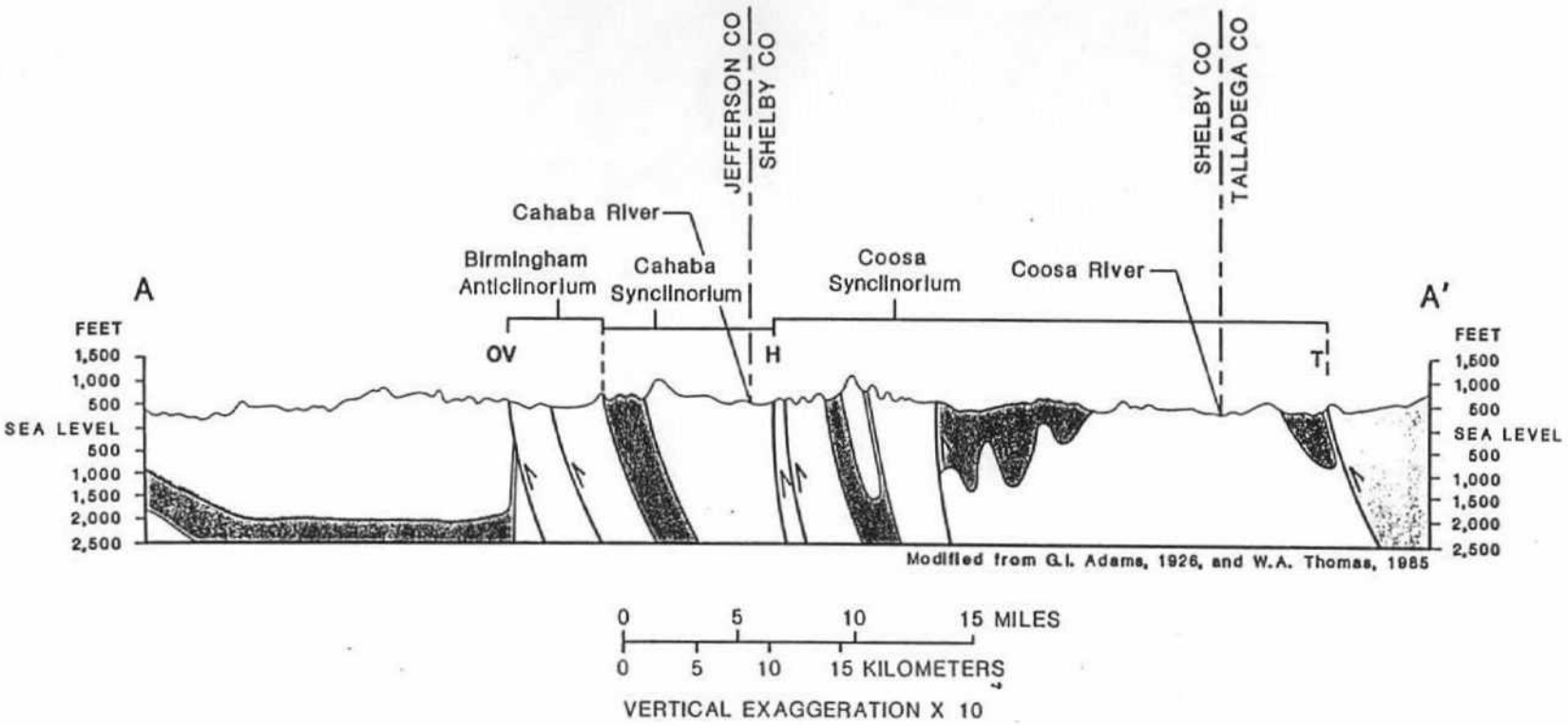

Figure 3.--Generalized geologic section through the study area (line of section shown on figure 2).

Stratigraphy and Lithology

Thomas (1985) divides the Paleozoic sedimentary sequence lying above the Precambrian basement into four major components: a basal Cambrian clastic sequence, a Cambrian-Ordovician carbonate shelf facies, a thin and laterally variable Middle Ordovician to Lower Mississippian sequence of shallow-marine shelf clastic and carbonate rocks, and parts of two Mississippian-Pennsylvanian clastic wedges that prograded over the carbonate shelf. Appalachian thrust faults have displaced the youngest preserved Paleozoic strata, and low grade metamorphism has occurred along and south of the Talladega thrust fault.

The Talladega Belt extends through eastern Calhoun, eastern Talladega, and southeastern Shelby Counties and consists of greenschist metasedimentary clastic and carbonate rocks, which possibly correlate with the Cambrian to Carboniferous rocks of the Valley and Ridge province (Neathery, 1973). The Lay Dam Formation forms the lower part of the Talladega Group, cropping out in Shelby and Talladega Counties. It is made up of coarse clastics such as arkoses, quartzites, conglomerates, and graywackes to the southwest, and finer grained siltstones, sandstones, and limestones to the northeast. The Abel Gap Formation of the Talladega Group (Neathery, 1973), which crops out in Calhoun County, resembles the Lay Dam Formation and is characterized by a thick lens of black siliceous slate. A third major division, the Hillabee Chlorite Schist, crops out east-southeast of the Lay Dam and Abel Gap Formations along the southeastern edge of the study area.

The Cambrian System is represented in the study area by the Chilhowee Group, Shady Dolomite, Rome Formation, and Conasauga Formation. The Chilhowee Group includes the Wilson Ridge Formation and the Weisner Quartzite (Mack, 1980). The Chilhowee crops out in the Weisner Ridges and the Coosa Valley (fig. 1). The Chilhowee Group consists of fluvial to shallow-marine sandstones, conglomerates, and mudstones with thicknesses in excess of 1,300 feet near Sylacauga in Talladega County (Thomas, 1985). The Shady Dolomite overlies the Chilhowee Group and generally forms valleys adjacent to, or occurs low on, Weisner-capped ridges. The Shady Dolomite reaches thicknesses of 500 to 1,000 feet and consists of sandy dolomite and dolomitic limestone. The Rome Formation overlies and crops out in proximity to the Shady Dolomite and in a narrow band east of the Helena thrust fault. Interbedded sandstones, siltstones, and shales make up the Rome which has an estimated thickness of 1,000 feet.

The Conasauga Formation, which crops out extensively throughout the Birmingham-Big Canoe, Cahaba and Coosa Valleys, differs lithologically across the study area. Dolomite is common in the Coosa Valley of Talladega, southeastern St. Clair, and northeastern Shelby Counties. The unit has an estimated thickness of 800 to 1,000 feet near Sylacauga in Talladega County (Thomas and Drahovzal, 1973). Interbedded shale, limestone, and sandstone occur in Calhoun and northern St. Clair Counties, and dolomite, shale, and limestone interbeds persist in Jefferson and southwest Shelby Counties (Thomas and Drahovzal, 1973).

The Knox Group of Cambrian and Ordovician age includes the Copper Ridge Dolomite, Chepultepec Dolomite, Longview Limestone, and Newala Limestone (Thomas and Drahovzal, 1973). The Knox Group overlies the Conasauga Formation and also crops out extensively in the valley areas. The thickness of the unit is approximately 3,900 feet (Thomas, 1985). The lithology ranges from siliceous dolomite in the lower part to fine- to coarse-grained limestones in the upper part.

Drahovzal and Neathery (1971) subdivide the Ordovician system into a dominantly carbonate western facies and a largely clastic eastern facies separated by the Helena thrust fault (fig. 2). In ascending order, the western facies is composed of: the Chickamauga Limestone, Inman Formation, Leipers Limestone, and Sequatchie Formation. The Chickamauga Limestone, Inman Formation, and Leipers Limestone are composed mainly of fine- to coarse-grained, medium- to thick-bedded, pure to argillaceous limestones. These beds are about 260 feet thick at Birmingham in Jefferson County, and thicken northward. The eastern facies is composed of the Lenoir Limestone, Little Oak Limestone, Athens Shale, Greensport Formation, Colvin Mountain Sandstone, and Sequatchie Formation (Drahovzal and Neathery, 1971). The units are dominantly clastic with the exception of the lower part (Lenoir and Little Oak Limestones) which are generally fine- to medium-grained, medium- to thick-bedded limestones which correlate in part to each other and to the Chickamauga Limestone. The combined thickness of the Lenoir and Little Oak Limestones ranges from a feather's edge in Calhoun County to about 800 feet at Odenville in St. Clair County. The Sequatchie Formation, a largely clastic unit, is the youngest Ordovician unit and thins to the southwest and northwest. The unit is only 3 feet thick in Birmingham, Jefferson County (Drahovzal and Neathery, 1971).

Silurian and Devonian outcrops within the study area are limited to a narrow area across Jefferson, northwest St. Clair, and northwest Calhoun Counties. The Silurian age Red Mountain Formation is primarily a clastic unit of interbedded sandstone, siltstone, shale, and hematite with thin interbeds of bioclastic limestone. The maximum thickness of the Silurian rocks is somewhat more than 500 feet (Thomas and Drahovzal, 1973). The Frog Mountain Sandstone of Devonian age is characteristically a medium- to very coarse-grained sandstone. In Calhoun County, the Frog Mountain is locally thick and apparently thickens toward the southeast to possibly as much as 200 feet. In Jefferson County, thicknesses of less than 25 feet are common. The Chattanooga Shale is a widespread black shale of Devonian age, generally less than 30 feet thick.

The Mississippian System in the study area includes a shallow-marine carbonate facies that is bordered on the southeast by a prograding clastic wedge of deltaic to shallow-marine sandstones and shales (Thomas, 1985). The Lower Mississippian Maury Shale, which overlies the Chattanooga Shale, is characterized as a greenish clay shale, and ranges from a few inches to about 3 feet in thickness. The upper Lower and Upper Mississippian rocks include, in ascending order: the Fort Payne Chert, Tuscumbia Limestone, Pride Mountain Formation, Hartselle Sandstone, Bangor Limestone, Floyd Shale, and Parkwood Formation. Some of these units thin or grade laterally into each other and, due to their lithologic complexity, the reader is referred to Thomas (1972) for a more detailed description of the Mississippian stratigraphy.

The Mississippian carbonate facies include the Fort Payne Chert which is primarily a thin-bedded fossiliferous chert and the overlying Tuscumbia Limestone which is a thin-bedded limestone and chert. These units generally crop out on the flanks of structures and have varying thicknesses that tend to thin southwestward in the Warrior basin and southeastward across the fold and thrust belt. Lenses of the Pride Mountain Formation and Hartselle Sandstone overlie the carbonate facies and, through facies changes, have general equivalents in the Floyd-Parkwood sequence. The Floyd-Parkwood clastic sequence progrades from the southwest into a carbonate facies (Bangor Limestone) in the northwestern part of the study area. Thicknesses generally increase southwestward in the Warrior Basin and southeastward across the Appalachians, but areas of maximum thickness (3,500 feet in the Coosa syncline) appear to coincide with structural troughs.

The Pennsylvanian System includes the uppermost part of the Parkwood Formation and the Pottsville Formation, youngest of the Paleozoic rocks, and crops out in the Warrior Basin as well as on the Cahaba and Coosa Ridges. The Pottsville, primarily a ridge-forming sequence of sandstone, shale and coal beds, overlies the Mississippian Bangor Limestone and the Mississippian and Pennsylvanian Parkwood Formation. The thickness of the unit increases southward to a known maximum of about 9,000 feet at the southern end of the Cahaba and Coosa synclines (Thomas, 1972).

HYDROLOGY OF THE MAJOR AQUIFERS

The geologic formations of Area 4 can be grouped into two types of major aquifers--the Knox-Shady and the Tuscumbia-Fort Payne. The complex geologic structure has disrupted the regional continuity of the formations so that each major aquifer type occurs repeatedly in different parts of the study area. Individual aquifers are associated with the major valleys in the study area (fig. 1), with the valleys separated by ridges consisting of the more impermeable rock types of sandstone, quartzite, and slate. The same major aquifer type may be present in adjacent valleys but may not be hydraulically connected because of faulting or folding (fig. 3). Rocks classified as aquifers are generally carbonates, and the highest yields are from wells that have intercepted interconnected solution cavities. Individual rock units and their water-bearing properties are described in table 1. Most rocks within the valleys are covered by a mantle of residuum, which is the product of the weathering of the underlying parent material, allowing water to occur under either water-table or artesian conditions within the aquifers.

The ridges dividing the valleys (fig. 1) and the rock types that capped them are as follows: Weisner, quartzite; western edge of the Northern Piedmont, slate; Cahaba, sandstone and conglomerate; and Blount Mountain, sandstone. These rocks are highly resistant to weathering, were unaffected by faulting, and are relatively impermeable. A well drilled in the Weisner Quartzite on Choccolocco Mountain in Calhoun County went to a depth of 305 feet without finding water (Johnson, 1933). The ridges generally have steep slopes and little soil which enhances the rapid runoff of rainfall to the edges of the flatter valleys.

The Knox-Shady aquifer is present in the Coosa, Cahaba, Birmingham-Big Canoe, and Murphree's Valleys. Formations included in the Knox-Shady aquifer are the Weisner Quartzite; Shady Dolomite; Conasauga Formation; Copper Ridge and Chepultepec Dolomites; and the Longview, Newala, Lenoir, and Little Oak Limestones.

The Weisner Quartzite is predominantly a ridge-forming formation in the study area, but there are areas where the sandstone is poorly cemented and the Weisner is water bearing as evidenced by Coldwater Spring with a discharge of 32 Mgal/d (million gallons per day). The water-bearing areas are usually associated with the valleys and not the ridges. The Shady Dolomite is characteristic of the calcareous rocks in the study area where dissolution of the rocks along fractures creates enlarged channels that can yield substantial amounts of water to wells. The Conasauga limestones of the Birmingham-Big Canoe Valley are good water-bearing units with the beds having well developed solution channels. In the Coosa Valley where the formation is shaley, it is not a good aquifer and is used only for domestic supplies.

The Copper Ridge and Chepultepec Dolomites are similar in their water-bearing characteristics. Both have an elaborate system of closely spaced and interconnected solution channels. Weathering results in a cherty soil that is porous and allows rapid infiltration of rainfall.

The Longview, Newala, Lenoir, and Little Oak Limestones have properties similar to the other carbonate units, with water derived from solution channels. Only the Longview has appreciable chert in its weathered soil, but the soil is not as permeable as the underlying dolomites.

As an indication of the variability of the Knox-Shady aquifer's potential, the maximum yields for wells and springs, respectively, are given for the counties where the aquifer is used: Calhoun, 1,100 gal/min (gallons per minute) and 32.0 Mgal/d; Jefferson, 750 gal/min and 3.6 Mgal/d; St. Clair, 400 gal/min and 3.2 Mgal/d; Shelby, 1,600 gal/min and 0.8 Mgal/d; and Talladega, 400 gal/min and 6.9 Mgal/d.

The Tuscumbia-Fort Payne aquifer is present in the Cahaba, Birmingham-Big Canoe, and Murphree's Valleys. Formations included in the Tuscumbia-Fort Payne aquifer are the Fort Payne Chert, Hartselle Sandstone, and Bangor Limestone.

The Fort Payne Chert owes its water-bearing capacity to the fact that the limestone in the cherty beds is easily dissolved, leaving a porous ground-water reservoir. Where the beds have been folded, incipient cracks in the chert have opened, enhancing the porosity of the aquifer. On the gentler slopes of the formation, broken chert fragments have accumulated, creating a highly permeable soil.

The Hartselle Sandstone is well cemented and has only fair porosity throughout most of its outcrop where it yields moderate amounts of water to wells. At Irondale in Jefferson County, however, the sandstone is soft and friable and yields are higher.

The Bangor Limestone, like the other carbonate rocks, has a network of solution channels that are interconnected and can yield large quantities of water. The formation contains sufficient chert to allow the development of a fairly permeable soil.

To indicate the variability of the Tuscumbia-Fort Payne aquifer's potential, the maximum yields for wells and springs, respectively, for the counties where the aquifer is used are: Jefferson, 1,200 gal/min and 0.2 Mgal/d; and St. Clair, 250 gal/min and 2.2 Mgal/d.

Two other aquifers, the Pottsville and Piedmont, are used for water supply within the study area but are not considered major aquifers. The Pottsville aquifer consists of the Pottsville Formation, and the Piedmont aquifer consists of Precambrian and Paleozoic metamorphic and granitic rocks. For information on these aquifers, the reader is referred to the reports in this series covering Area 3 (Stricklin, 1989) and Area 5 (Kidd, 1989).

Recharge and Movement of Ground Water

The source of recharge to the major aquifers is rainfall. Average annual rainfall is about 53 inches per year, but a large part of this is lost either by direct runoff to streams immediately after a rain or by evapotranspiration to the atmosphere. A relatively small part of the total rainfall infiltrates to the water table to recharge the aquifers. The only measurable amount of recharge to the aquifers is that which is discharged to streams. A conservative estimate of recharge can be obtained by examining the base (dry weather) flow of streams. Based on data from six long-term gaging stations within the study area, the estimate for aquifer recharge is about 5 inches per year.

Movement of ground water is controlled by the force of gravity so that water moves from points of higher altitude to points of lower altitude. Ground-water movement can be illustrated by plotting the water levels in wells on a map and contouring the water levels. This produces a potentiometric surface map and, by tracing a line perpendicular to the contours from higher to lower altitudes, one can determine the path that ground water moves through the aquifer. Streams are the most common natural low points on the potentiometric surface map, but within the study area there are numerous springs which occur where the water table intercepts the land surface. The general pattern of ground-water movement for the Knox-Shady aquifers can be determined from the potentiometric surfaces on plate 1. The potentiometric surfaces were constructed for data ranging from 1928 to 1987 and, due to natural annual fluctuations generally being less than 10 feet, the surfaces being contoured at 50 feet intervals should be representative of average conditions within the aquifers. Movement of ground water is primarily from the higher altitudes adjacent to the ridges to the center of the valleys, but there is also "down-valley" movement in the same direction that the streams flow. Incised streams draining the aquifers in the Birmingham-Big Canoe Valley can cause depressions in the potentiometric surfaces, as can be noted at Pinson in northern Jefferson County and just south of Birmingham. But, in the broader Coosa Valley, the potentiometric gradients are smoother reflecting the gentler relief.

Pumping from a well also causes a depression in the potentiometric surface of an aquifer. However, no one withdrawal rate is large enough in the study area to be visible on plate 1. Water-level data for the Tuscumbia-Fort Payne aquifers are too sparse and the outcrop of their formations too narrow to present potentiometric surface maps for these aquifers. The general ground-water flow direction is the same as the surface-water gradient.

Faulting is another important factor that needs to be considered when discussing ground-water flow in the study area, as noted by Johnson (1933, p. 77).

> "In the Appalachian area of northern Alabama, where the rocks are much disturbed, fault planes yield water to drilled wells and supply many springs.
>
> Few faults of large displacement are simple fractures. Their walls are crushed and broken, forming a wide fault zone which may be waterbearing, though the rocks involved are themselves impermeable. Thus, even so poor an aquifer as the Floyd shale may have secondary openings, resulting from faulting, which yield a good water supply, as at Columbiana, in Shelby County, where the Warrior Water Co.'s well, 97 feet deep ending in crumpled Floyd shale near the Talladega slate fault contact, yields 200 gallons of water a minute.
>
> In northern Alabama there are many springs that rise on fault planes. ***Avondale Mills Spring, St. Clair County, is fed by the Fort Payne chert near a fault contact with the Floyd shale and flows at the rate of 500 gallons a minute; Angel Spring, Calhoun County, on a fault between Floyd shale and Copper Ridge dolomite, yields 800 gallons a minute; and Joe McReynolds Spring, in Calhoun County, rises on a fault plane between the Weisner quartzite and the Shady dolomite and flows 500 gallons a minute. In these and many other springs within the area the fault zone acts as a conduit for the movement of ground water."

Information is not available to completely evaluate the importance of faulting on ground-water movement in the study area, but a report (Scott and others, 1987) on Coldwater Spring, which lies on the trace of the Jacksonville Fault, attempted to identify the recharge area for the spring. Based on a potentiometric surface map, the recharge area for the spring was estimated to be about 23 mi^2 (Scott and others, 1987). However, recharge rates determined from ground-water runoff to streams during periods of low flow indicate that the recharge area for the spring could be about 90 mi^2. The discrepancy in the values determined for the recharge area emphasizes the importance faulting may have on ground-water movement throughout the study area.

Natural Discharge and Ground-Water Withdrawals

A large part of aquifer recharge is discharged to streams through seeps and springs. At the driest time of the year, almost 600 Mgal/d of ground water are discharged to the streams in the study area (Hayes, 1978). Pumpage from wells accounts for any other measurable discharge from the aquifer system. For the study area, estimated withdrawals from ground water are as follows: public supply, 43.0 Mgal/d; self-supplied industry, 6.0 Mgal/d; agriculture, 1.5 Mgal/d; and self-supplied domestic, 2.0 Mgal/d (Baker and Mooty, 1987). The estimated total withdrawal of 52.5 Mgal/d is equivalent to 0.3 inches per year of recharge. The largest ground-water users in the study area are Anniston (17.0 Mgal/d), Talladega (4.0 Mgal/d), Leeds (2.5 Mgal/d), Trussville (2.4 Mgal/d), and Alabaster (2.2 Mgal/d). Locations of all public-supply wells and springs are shown on plate 1; pertinent data concerning the wells and springs, including well construction, water levels, and spring flows are presented in table 2.

SUSCEPTIBILITY OF THE AQUIFERS TO CONTAMINATION

All of the recharge areas for the major aquifers are susceptible to surface contamination (plate 1). The recharge areas occur in the stream valleys where rainfall runoff is much slower than that of runoff on steeper-sloped ridges. Slower runoff allows more infiltration of rainfall and, therefore, provides the means to carry contaminants to the aquifers. Locally (areas too small to show on plate 1) the susceptibility of an aquifer to contamination may be higher because of three factors that can potentially increase the permeability of the aquifer materials or the soils overlying the aquifers.

Faulting enhances the permeability of most rock materials as the stresses during faulting mechanically fracture the rocks. This is apparent from the coincidence of major springs associated with traces of major faults (Johnston, 1933). The increased permeability in fault zones also represents an increase in the potential for surface contamination to enter the aquifer; these areas are designated as highly susceptible to contamination. The identification of these areas in such a geologically complex environment would require a detailed geologic map showing the traces of individual faults and is beyond the scope of this investigation.

When rocks that have a high chert content are weathered, the chert remains unaltered, leaving a residuous soil which is fairly porous, and allows rapid recharge (Johnston, 1933). Again, areas underlain by these soils tend to be more susceptible to surface contamination, but a detailed geologic map or possibly a soils map showing the particular formations or soils of interest would be needed to identify these localized areas.

There are areas within the study area that can be classified as extremely susceptible to contamination and these areas coincide with the locations of sinkholes. Sinkholes are depressions in the land surface caused by the collapse of rock materials into a solution cavity. Sinkholes can provide a

direct link to the aquifer system that could allow immediate contamination of the aquifer. Locations of mappable sinkholes are shown on plate 1 with distinction made between smaller and larger (greatest surface dimension greater than 0.2 mile) sinkholes.

SUMMARY AND CONCLUSIONS

The geology of the study area, along with the diverse physiography, is quite complex owing to past large-scale tectonic activity. Most of the study area is in the Appalachian fold and thrust belt which consists of Paleozoic sedimentary strata. Paleozoic metasedimentary rocks crop out along the southeastern border of the study area and are separated from the fold and thrust belt by the Talladega fault.

The geologic formations in Area 4 can be grouped into two types of major aquifers--the Knox-Shady of Cambrian-Ordovician age rocks and the Tuscumbia-Fort Payne of Mississippian age rocks. The complex structure in the area has disrupted the regional continuity of the formations so that individual aquifers are associated with the major valleys in the study area and the same major aquifer type may be present in adjacent valleys but may not be hydraulically connected because of faulting or folding.

Aquifers coincide with the physiographic districts of the Coosa Valley, Cahaba Valley, Birmingham-Big Canoe Valley, and Murphree's Valley. These aquifers are tapped within their outcrop areas where they are also recharged. Most rocks are covered by a mantle of residuum which is a product of the underlying parent material so that water may occur in either water-table or artesian conditions within the aquifers. Highest yields from aquifers are associated with solution openings in carbonate rocks. Springs provide substantial amounts of water for municipal supply with the largest being Coldwater Spring in Calhoun County.

For the study area, estimated withdrawals from ground water are as follows: public supply, 43.0 Mgal/d; self-supplied industry, 6.0 Mgal/d; agriculture, 1.5 Mgal/d; and self-supplied domestic, 2.0 Mgal/d (Baker and Mooty, 1987). The estimated total withdrawal of 52.5 Mgal/d is equivalent to 0.3 inches per year of recharge. The largest ground-water users in the study area are Anniston (17.0 Mgal/d), Talladega (4.0 Mgal/d), Leeds (2.5 Mgal/d), Trussville (2.4 Mgal/d), and Alabaster (2.2 Mgal/d).

All the recharge areas for the aquifers are susceptible to contamination from the surface. Two conditions exist in the study area which may cause the aquifers to be highly susceptible to contamination on a local scale: rock materials are fractured in places due to faulting, and weathered, cherty soils tend to be porous. Where sinkholes are present, there may be a direct connection between the surface and the aquifer; these areas are considered to be extremely susceptible to contamination.

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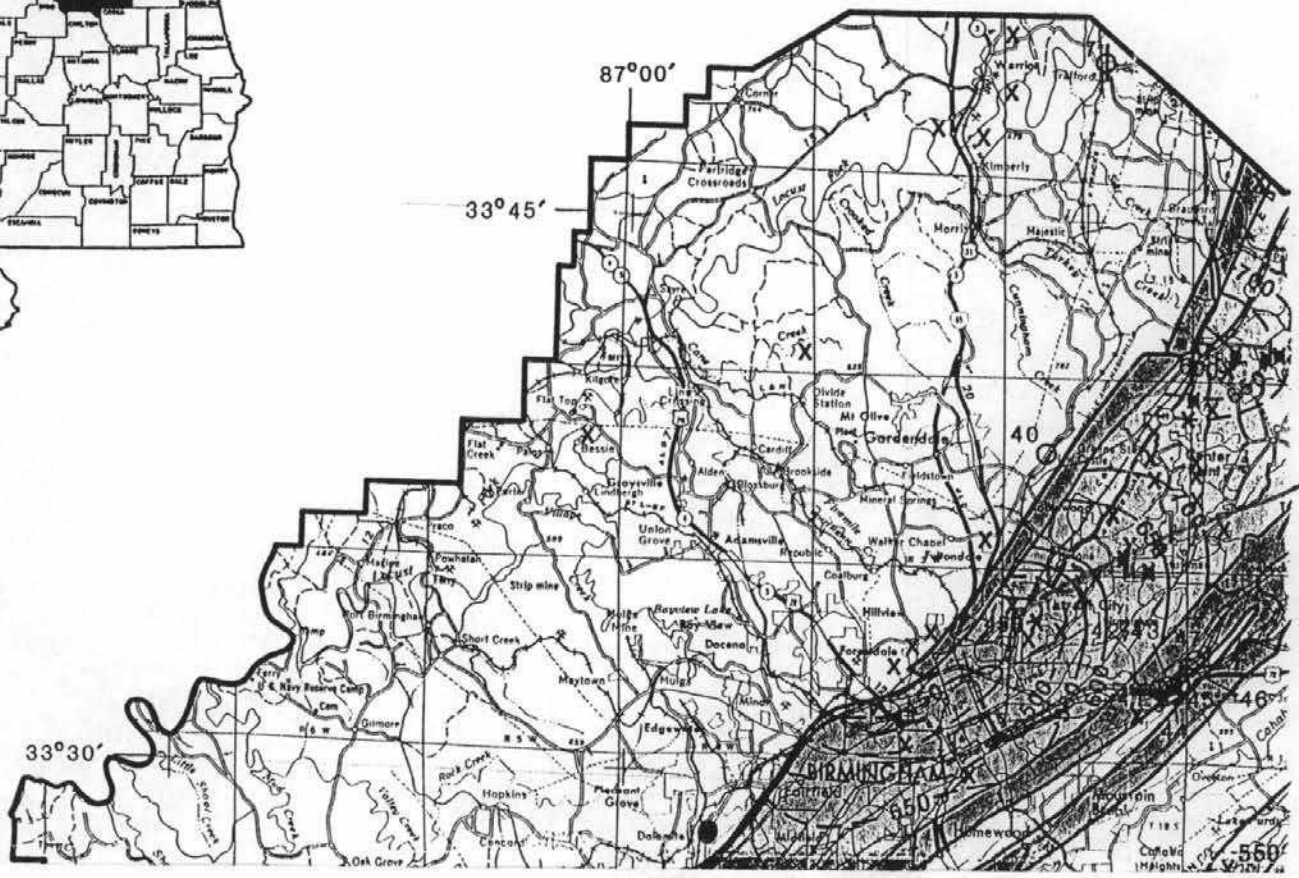

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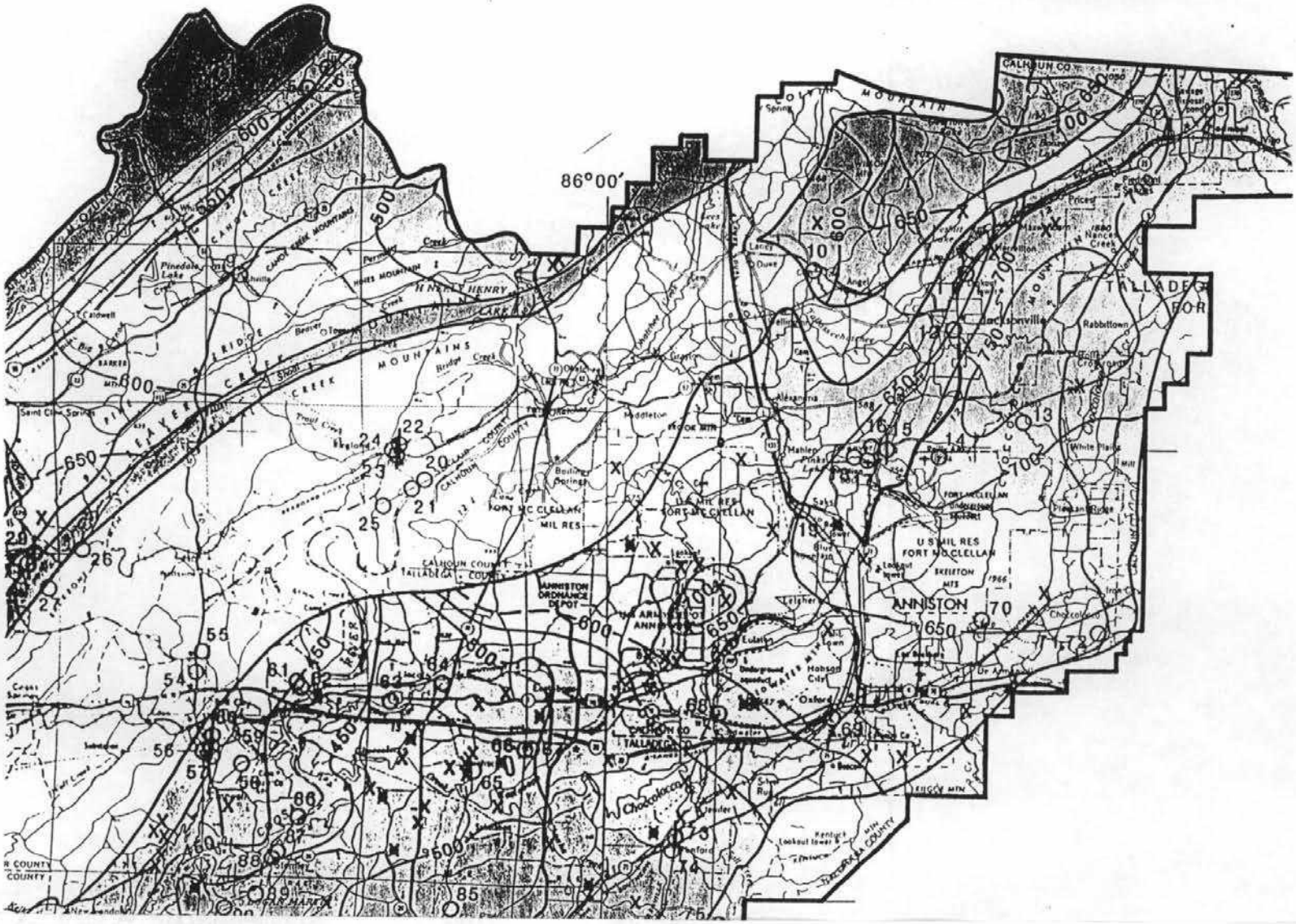
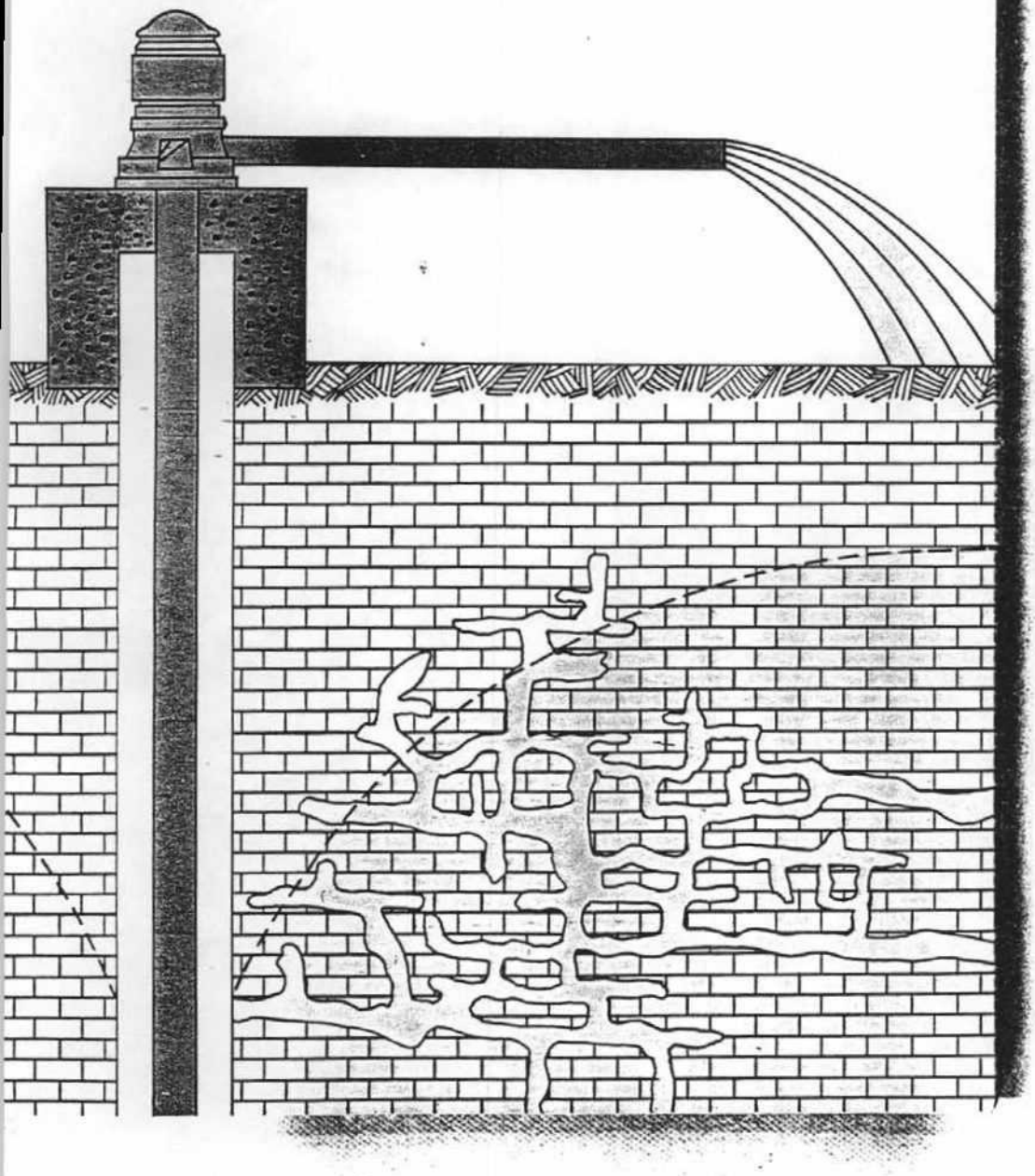
WATER-RESOURCES INVESTIGATIONS
REPORT 88-4133 PLATE 1



GROUND-WATER RESOURCES OF THE BIRMINGHAM AND CAHABA VALLEYS, JEFFERSON COUNTY, ALABAMA

GEOLOGICAL SURVEY OF ALABAMA *CIRCULAR 103*



GEOLOGICAL SURVEY OF ALABAMA

Thomas J. Joiner
State Geologist

ENVIRONMENTAL DIVISION

Maurice F. Mettee
Chief

WATER RESOURCES DIVISION

Henry C. Barksdale
Chief

CIRCULAR 103

GROUND-WATER RESOURCES OF THE BIRMINGHAM AND CAHABA VALLEYS OF JEFFERSON COUNTY, ALABAMA

by

Tola B. Moffett and
Paul H. Moser

Prepared in cooperation with the City of Birmingham and Jefferson County

University, Alabama
1978

CONTENTS

CONTENTS

ILLUSTRATIONS

(Plate in pocket)

FIGURES

TABLES

(Tables 1 and 2 in Basic Data Section)

STRUCTURE

The structural geology of the areas of investigation is complex and distinctly affects the occurrence of ground water in some areas. The study areas contain a series of anticlines and synclines that have parallel thrust faults and high-angle cross faults (fig. 1). The Birmingham-Big Canoe Valley is developed upon a faulted asymmetrical anticlinorium that exposes limestones, dolomites, shales, sandstones, and cherts (Johnston, 1933). Many of the geologic formations dip steeply into the subsurface as a result of the intense folding. A large amount of faulting and jointing associated with the folding of the rocks has displaced and broken the rocks in many areas. This has resulted in increased solution and porosity of the rocks. The faults can adversely affect water-well development because the broken zones in and near the faults may produce large amounts of sediment. Careful selection of test drilling sites near fault zones is warranted.

HYDROLOGY

HYDROLOGIC CYCLE

Precipitation, surface runoff, evapotranspiration, and ground-water recharge and discharge are major components of the hydrologic cycle (fig. 2). Through this cycle, and as a result of natural processes, water can be continuously purified and used by plants and animals without depleting the supply. The oceans are the primary reservoir that supplies and receives the enormous quantities of water involved in the hydrologic cycle. The recycling of this water to and from the ocean results from forces exerted predominantly by the sun's energy and the earth's gravity. In general, the sun supplies energy to evaporate water from the ocean. This water rises as a vapor into the atmosphere where it forms clouds. Eventually, this moisture moves over the land, condenses, and falls back to the earth in some form of precipitation. Responding to gravity, this precipitation then begins a slow but constant movement through the surface- and ground-water systems back toward the ocean.

In Jefferson County, an average of 53 inches of precipitation, usually rain, falls on the land surface each year. This 53 inches of rain falling upon the 1,120 square miles in Jefferson County is equal to about 138 billion cubic feet or slightly more than 1 trillion gallons of water each year. Not all of this water is available for man's use because of the requirements of the other components of the hydrologic cycle. A

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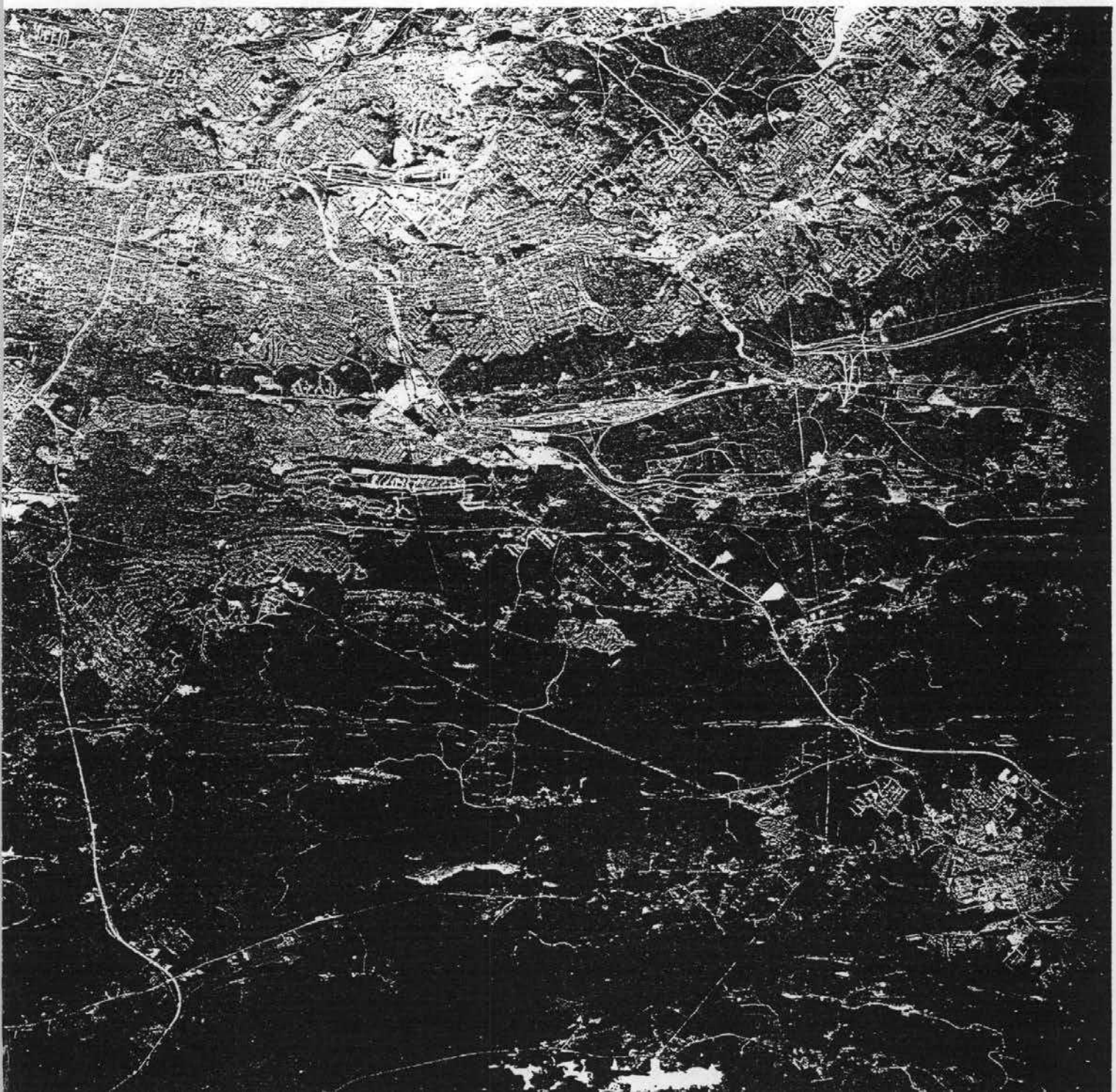
AREAL GEOLOGY

OF

JEFFERSON COUNTY, ALABAMA



GEOLOGICAL SURVEY OF ALABAMA
Thomas J. Joiner
State Geologist

GEOLOGIC DIVISION
Charles W. Copeland, Jr.
Chief Geologist

ATLAS 15

AREAL GEOLOGY OF JEFFERSON COUNTY, ALABAMA

By Jack T. Kidd

with a section on
LINEAMENTS
By Karen E. Richter

This atlas was compiled and published as part of a cooperative program by Jefferson County; the cities of Birmingham, Homewood, Gardendale, and Pleasant Grove; U.S. Geological Survey; and Geological Survey of Alabama.

University, Alabama
1979

CONTENTS

ILLUSTRATIONS

TABLE

The Alabama Valley and Ridge section consists of northeast-southwest-trending valleys and ridges and includes Birmingham Valley, Cahaba Ridges, Cahaba Valley, and Coosa Ridges. The Cumberland Plateau section is characteristically a dissected plateau of moderate relief and includes the Warrior Basin and the southern extension of Murphrees Valley and Blount Mountain (Sapp and Emplaincourt, 1975).

The Birmingham Valley is approximately 45 miles long and ranges from 3 to 7 miles in width. It extends from near the Jefferson-St. Clair County boundary in the northeast to near the Tuscaloosa-Bibb-Jefferson County boundaries to the southwest. The southwestern end of the valley is obscured by Coastal Plain sediments south of the Bucksville area, and the northeastern end of the valley merges with Big Canoe Valley in western St. Clair County. Birmingham Valley is bounded on the northwest by an escarpment formed by the Pottsville Formation. This escarpment includes Rock Mountain along the southwestern edge of the valley and Sand Mountain along the northwestern edge. The northern part of Birmingham Valley is bounded by the southwestern extensions of Murphrees Valley and Blount Mountain and merges with Big Canoe Valley in St. Clair County. The southeastern side of Birmingham Valley is bounded by escarpments formed by the Parkwood and Pottsville Formations. These escarpments are known locally as Shades and Little Shades Mountains. The central part of the Birmingham Valley is separated into two smaller valleys by Flint Ridge. Opossum Valley lies to the west of Flint Ridge and Jones Valley to the east.

Red Mountain, which is located along the eastern side of the Birmingham Valley, is a narrow prominent ridge that trends northeast-southwest and separates Shades Valley on the southeast from Jones Valley on the northwest. Red Mountain is so named for the characteristic red soil and rocks of the iron-bearing Red Mountain Formation which crops out along the crest.

The Cahaba Ridges are located in eastern Jefferson County between Birmingham and Cahaba Valleys. The Cahaba Ridges consist of a group of parallel, linear, northeast-southwest-trending ridges and valleys formed by the sandstones and shales of the Pottsville and Parkwood Formations.

Cahaba Valley is located between the Cahaba Ridges to the northwest and the Coosa Ridges to the southeast. Cahaba Valley in Jefferson County is about 10 miles long and 2 to 3 miles wide. The valley is underlain predominantly by non-resistant carbonate and shale beds that are generally highly folded and faulted. The Cahaba Valley-Cahaba Ridges boundary is marked by the Helena fault and a long, narrow valley developed upon the shales of the Rome Formation.

The Cahaba Valley is bounded on the southeast by the Coosa Ridges, which consist of northeast-southwest-trending, subparallel ridges and valleys formed by sandstones and shales of the Pottsville and Parkwood Formations. In Jefferson County, the Coosa Ridges are bounded on the northwest by Oak Mountain, a prominent escarpment overlooking the Cahaba Valley.

The Cumberland Plateau section in northern and western Jefferson County consists of Blount Mountain, Murphrees Valley, and the Warrior Basin. Blount Mountain is a prominent steep-sided dissected plateau underlain by gently dipping beds of the Pottsville Formation. In Jefferson County, Blount Mountain is bounded on the south and southeast by Birmingham Valley and on the west by Murphrees Valley. Murphrees Valley is a faulted anticlinal valley that contains inner valleys and ridges. Murphrees Valley is bounded on the west by the Warrior Basin and merges with Birmingham Valley to the south. The Warrior Basin is a broad dissected upland developed upon gently dipping beds of the Pottsville Formation.

GENERAL GEOLOGY

Jefferson County is underlain by more than 10,000 feet of sedimentary rocks (table 1) that are generally flat-lying in the northwest and folded and faulted in the southeast. The flat-lying rocks of the Warrior Basin in northwestern Jefferson County are separated from the faulted and folded rocks of the Valley and Ridge in southeastern Jefferson County by the Appalachian structural front, a tectonic zone located along the northwestern edge of the Birmingham Valley.

Exposures of bedrock in Jefferson County range in age from Cambrian to Pennsylvanian (fig. 2). Mixed carbonate and clastic rocks of Cambrian age are generally exposed along the axes of the eroded anticlines and adjacent to the major thrust faults. Rocks ranging in age from Cambrian to Mississippian, including clastic and carbonate formations, occur along the flanks of the anticlines, and resistant sandstones and shales of Pennsylvanian age underlie the Warrior Basin and cap the higher ridges in the county. Sand, clay, and gravel deposits of Late Cretaceous age occur as outliers near the boundaries with Tuscaloosa and Bibb Counties. Unconsolidated alluvial deposits of Quaternary age, composed mainly of clay, sand and gravel, occur along and generally parallel to the streams and rivers in the area and as isolated terrace deposits in areas away from the present streams. These latter deposits were formed when beds of ancestral streams in the area were at higher elevations than today's streams.

CAMBRIAN

ROME FORMATION

The Rome Formation is about 500 feet thick and consists of greenish-gray and grayish-red shale with rare thin beds of argillaceous limestone, chert and sandstone. The Rome crops out only in the Cahaba Valley in a thin belt adjacent to the Helena thrust fault.

CONASAUGA FORMATION

The Conasauga Formation consists of thin-bedded, dark- to brownish-gray sublithographic limestone, light-olive to medium-gray shale, and brownish-gray dolomite. Chert locally occurs in the residuum as thin prismatic fragments. The Conasauga is estimated to be 1,100 to 1,900 feet thick and occurs throughout Jones and Opossum Valleys but is absent in the Cahaba Valley (Butts, 1910).

KETONA DOLOMITE

The Ketona consists of 400 to 600 feet of relatively pure chert-free light-brownish-gray to yellowish-gray crystalline thick-bedded dolomite with lesser amounts of brownish-gray dolomite occurring near the contact with the underlying Conasauga Formation. The Ketona is present throughout the Cahaba and Opossum Valleys and Jones Valley north of McCalla; south of the McCalla area, the Ketona is absent.

CAMBRIAN AND ORDOVICIAN

KNOX GROUP UNDIFFERENTIATED

The Knox Group consists of medium- to light-gray thick-bedded cherty dolomite with lesser amounts of limestone and dolomitic limestone. The Knox generally weathers to irregular boulders and fragments of light-gray to grayish-pink chert and is generally unfossiliferous, although cryptozoans and gastropods occur locally. The Knox occurs throughout Jones, Opossum, and Cahaba Valleys and is estimated to be approximately 2,000 feet thick in the Birming-

MAP EXPLANATION[1]

QUATERNARY	Qal	Alluvium and low terrace deposits
	Qt	High terrace deposits
	Qt?	Possible terrace of questionable age
CRETACEOUS	Kc	Coker Formation: Tuscaloosa Group
PENNSYLVANIAN	IPpv	Pottsville Formation
	IPMpw	Parkwood Formation
MISSISSIPPIAN	Mf	Floyd Shale
	Mb	Bangor Limestone
	Mh	Hartselle Sandstone
	Mpm	Pride Mountain Formation
	Mtfp	Tuscumbia Limestone, Fort Payne Chert, and Maury Formation
DEVONIAN	Dcfm	Chattanooga Shale and Frog Mountain Sandstone
SILURIAN	Srm	Red Mountain Formation
ORDOVICIAN	Oc	Chickamauga Limestone
	Oca	Attalla Chert Conglomerate Member: Chickamauga Limestone
	Ou	Ordovician undifferentiated
CAMBRIAN	OЄk	Knox Group undifferentiated
	Єkt	Ketona Dolomite
	Єc	Conasauga Formation
	Єr	Rome Formation

Formation symbol enclosed in parentheses where formation is concealed.

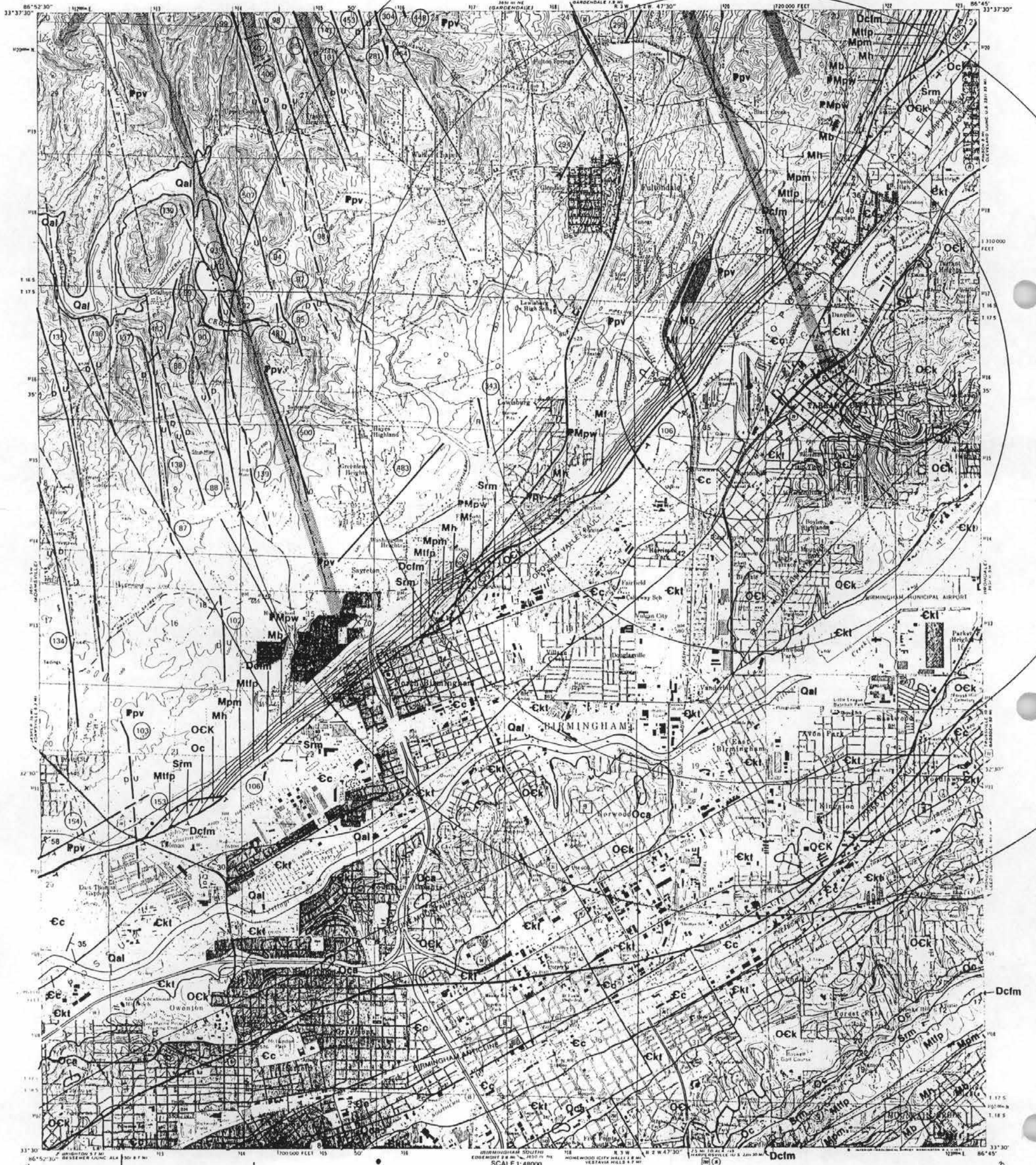
- Lineaments from LANDSAT band-6 print, February 1977.
- Lineaments from U.S. Geological Survey 7½-minute orthophotoquads, 1975.
- Lineaments from National Aeronautics and Space Administration High-altitude color-infrared photography, February 22, 1973.
- Anticline, axial trace
- Anticline, axial trace showing direction of plunge
- Syncline, axial trace
- Syncline, axial trace showing direction of plunge
- Fault, relative movement not known
- U / D — Normal fault: U, upthrown side: D, downthrown side
- Thrust fault, T on upper plate
- Fault, showing relative horizontal movement
- R R — Reverse fault, R on upthrown side
- Strike and dip of beds
- Strike and dip of overturned beds
- Strike of vertical beds
- Horizontal beds
- Contact of geologic units, dotted where concealed
- 98 / 5 — Fault reference number
- 4 — Fold reference number

Faults, synclines and anticlines are dashed where inferred; dotted where concealed.

[1] The illustrated symbols do not necessarily appear on all maps.

GEOLOGICAL SURVEY OF ALABAMA
THOMAS J. JOINER
STATE GEOLOGIST

MAP 14
BIRMINGHAM NORTH QUADRANGLE
ALABAMA–JEFFERSON CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
SE/4 BIRMINGHAM COAL DISTRICT 15' QUADRANGLE



BASE TOPOGRAPHIC MAP BY USGS 1959
PHOTO REVISED 1970

Geology modified from
Kidd and Shannon, 1977

AREAL GEOLOGY AND LINEAMENTS OF THE BIRMINGHAM NORTH QUADRANGLE, ALABAMA

Areal Geology by Jack T. Kidd
Lineaments by Karen E. Richter
1979

GROUND-WATER AVAILABILITY IN JEFFERSON COUNTY, ALABAMA

GEOLOGICAL SURVEY OF ALABAMA

SPECIAL MAP 224

GEOLOGICAL SURVEY OF ALABAMA

Ernest A. Mancini
State Geologist

WATER RESOURCES DIVISION

GROUND-WATER AVAILABILITY IN JEFFERSON COUNTY, ALABAMA

To Accompany Special Map 224

By

Jonathan A. Hunter and Paul H. Moser

Tuscaloosa, Alabama
1990

CONTENTS

CONTENTS—CONTINUED

ILLUSTRATIONS

TABLES

80°F in July. The average annual temperature is approximately 62°F. The base period 1951 to 1980 was used in calculating these climatic data.

GEOLOGY

GENERAL STRATIGRAPHY

Jefferson County is underlain by more than 10,000 feet of sedimentary rocks that range in age from Cambrian to Holocene. Rocks in the northwestern half of the county have very gentle dips while those in the southeastern half of the county commonly are steeply dipping and even overturned in many places as a result of folding and faulting. The gently dipping rocks in the Warrior basin are separated from the disturbed units in the Valley and Ridge by the Appalachian structural front, a tectonic zone situated along the northwestern edge of Birmingham Valley.

Alternating carbonate and clastic units of Cambrian age are exposed along the axes of eroded anticlines and adjacent to the major thrust faults. Cambrian- to Mississippian-age carbonate and clastic rocks are exposed along the flanks of the anticlines. Resistant sandstones and shales of Pennsylvanian age are exposed in the Warrior basin and along the crests of some of the higher ridges in the county. Overlying the bedrock in most areas of the county are varying thicknesses of unconsolidated material commonly referred to as regolith. These deposits consist of fragmented rock material derived from the intense weathering of the bedrock. Late Cretaceous units of sand, gravel, and clay exist as outliers on hilltops near the Tuscaloosa and Bibb County boundaries. Thin accumulations of unconsolidated alluvial sediments of Holocene age occur along many of the larger streams and rivers in the county. Similar deposits of sand, gravel, and clay are present at higher elevations above some of the streams. Known as terrace deposits, these sediments are ancient remnants of the floodplains that existed when the streams were at higher elevations than they are today.

The outcrops and the subsurface relationship of the geologic units in Jefferson County are shown in figure 4. The following lithologic descriptions and thickness values were modified from Moffett and Moser (1978), Kidd and Richter (1979), and Szabo and others (1988).

CAMBRIAN SYSTEM

ROME FORMATION

The Rome Formation consists of variegated thinly interbedded mudstone, shale, siltstone, and sandstone, with local occurrences of limestone and dolomite. Quartzose sandstone is common near the top of the formation. The Rome has a thickness of at least 500 feet. The only exposure of the Rome in Jefferson County is found in a thin belt adjacent to the Helena thrust fault in the Cahaba Valley.

CONASAUGA FORMATION

The Conasauga Formation is composed of medium-bluish-gray fine-grained, thin-bedded, argillaceous limestone with varying proportions of interbedded dark-gray shale. The Conasauga is estimated to be between 1,100 and 1,900 feet thick. The formation occurs throughout Jones and Opossum Valleys, but is absent in Cahaba Valley (Butts, 1910). The regolith covering the Conasauga bedrock has an average thickness of about 35 feet (Barksdale and Moore, 1976).

KETONA DOLOMITE

The Ketona is composed of light- to medium-gray thick-bedded coarsely crystalline dolomite. The formation is present throughout Cahaba and Opossum Valleys and in Jones Valley north of McCalla. In these areas, the formation attains a maximum thickness of about 600 feet. The Ketona is absent south of the McCalla area.

CAMBRIAN AND ORDOVICIAN SYSTEMS

KNOX GROUP UNDIFFERENTIATED

The Knox Group includes, in ascending order, the Copper Ridge Dolomite, Chepultepec Dolomite, Longview Limestone, and Newala Limestone. In the Birmingham anticlinorium, the Knox is represented by the Copper Ridge and Chepultepec and is mapped either as the Copper Ridge (Ꞓcr) or as the Copper Ridge-Chepultepec undifferentiated (OꞒccr). In Cahaba Valley, however, the entire section of Knox is present and is mapped as the Knox Group undifferentiated (OꞒk) or the Copper Ridge-Chepultepec undifferentiated (OꞒccr), Longview Limestone (Olv), and Newala Limestone (On).

following sections. The geologic units that are not considered to be significant aquifers in the county are omitted from the discussion. Table 1 summarizes the lithologic and water-bearing characteristics of the aquifers in the county.

CONASAUGA FORMATION

The Conasauga is a source of large quantities of water for wells and springs in Jefferson County. Because the zones of increased porosity and permeability are concentrated along solution channels, however, the availability of water from the formation is not uniformly distributed. The wells with the highest yields are those that penetrate the solution-enlarged openings in the rock. Test drilling is often required to locate these cavities. Reported well yields as high as 300 gpm (gallons per minute) and estimated spring discharges of up to 3,400 gpm from the Conasauga have been documented in previous studies (Johnston, 1933; Robinson and others, 1953; Moffett and Moser, 1978). The porosity of the formation is estimated to be about 1.5 percent (Barksdale and Moore, 1976). This estimate does not include interstitial porosity in the formation, since water in these pore spaces could not be developed by conventional methods. As in most consolidated aquifers, the porosity and permeability in the Conasauga generally decrease with depth. Most of the ground water is contained within the upper 300 feet of the formation.

The regolith covering the Conasauga bedrock would likely provide small quantities of water to very shallow wells in some areas. Often capable of storing large amounts of water, the regolith releases the water very slowly to the underlying bedrock.

KETONA DOLOMITE

The Ketona is a major producer of water in Jefferson County. Moffett and Moser (1978) reported well yields as high as 390 gpm and estimated spring flows of 2,000 gpm from the Ketona. Extensive solution channels in the

Table 1.--Characteristics of the major water-bearing units in Jefferson County, Alabama

Geologic unit	Range in thickness (ft)	Water-bearing characteristics
Pottsville Formation	100 - 2,000	Water is concentrated in fractures, joints, and along bedding planes. Usually yields less than 10 gpm per well.
Bangor Limestone	0 - 500	Water contained in solution-enlarged cavities, joints, and fractures. Capable of supplying 500 + gpm in some areas.
Hartselle Sandstone	0 - 120	Water found in fractures, joints, and interstitial pores. Generally yields small quantities of water to wells and springs, although large quantities have been documented from some areas.
Fort Payne Chert and Tuscumbia Limestone undifferentiated	160 - 310	Water occurs in solution-enlarged openings. Reported to provide 800 + gpm per well in some parts of the county.
Chickamauga Limestone	200 - 500	Water found in solution cavities, joints, fractures, and along bedding planes. Yields of 700 gpm from the formation have been reported in Jefferson County.
Little Oak and Lenoir Limestones undifferentiated	Up to 1,000	Water occurs in solution cavities. Probably capable of providing large quantities of water to wells where solution cavity development is extensive.
Knox Group undifferentiated	1,500 - 3,000	Large quantities of water occur in solution cavities. Reported well yields of 820 gpm and measured spring discharges as high as 3,900 gpm have been documented from the Knox Group.
Ketona Dolomite	400 - 600	Water occurs in solution cavities. Reported well yields as high as 390 gpm and estimated spring discharges of 2,000 gpm from the Ketona have been documented.
Conasauga Formation	1,100 - 1,900	Water found in solution cavities. Reported well yields as high as 300 gpm and estimated spring discharges of 3,400 gpm from the Conasauga have been documented.

The Geology of North America
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Hydrogeology

Edited by

William Back
U.S. Geological Survey
431 National Center
Reston, Virginia 22092

Joseph S. Rosenshein
U.S. Geological Survey
414 National Center
Reston, Virginia 22092

Paul R. Seaber
Illinois Geological Survey
Natural Resources Building
615 East Peabody Drive
Champaign, Illinois 61820

1988

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Front Cover: Thunder Spring, perennial source of Thunder River, a tributary of Tapeats Creek in the Grand Canyon of the Colorado River, Arizona. The spring issues from above a relatively impermeable layer in the Cambrian Muav Limestone. Photo by John E. Warme and Lewis C. Kleinhans, Colorado School of Mines, July 1988.

Contents

Coastal Plain Sector

Island Sector

Permafrost

III. COMPARATIVE HYDROGEOLOGY

IV. GROUNDWATER AND GEOLOGIC PROCESSES

V. OUTLINE FOR THE FUTURE

Plates

The Geology of North America
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Chapter 38

Carbonate rocks

. Brahana
. Geological Survey, Federal Courthouse, Nashville, Tennessee 37203
n Thrailkill
artment of Geology, University of Kentucky, Lexington, Kentucky 40506-0059
n Freeman
artment of Geology, University of Missouri, Columbia, Missouri 65211
C. Ward
artment of Earth Sciences, University of New Orleans, New Orleans, Louisiana 70148

RODUCTION

The hydrogeology of carbonate rocks is more variable than of any other major rock type. Whereas some carbonate nations are among the most permeable and productive aqui- known, others have such low permeability that they serve as or confining layers and yield virtually no water to wells. In bonate terranes throughout North America and the world, rogeologic variability generally is the rule rather than the eption.

This wide range of hydrogeologic behavior results from the nplex interaction of many geologic and hydrologic variables. st important of these variables is the continually evolving osity and permeability distribution of the rock mass, which is sult of the chemical interaction of the carbonate rocks and the ter moving through them. The flow of water through the rocks ssential for aquifer development, for it is flow that serves as the mary transport mechanism in the dissolution of carbonate ks.

The purpose of this chapter is to describe the major hydro- logic controls, principles, and processes that affect the occur- ce, movement, storage, and geochemistry of ground water in bonate rocks. The chapter represents a synthesis of selected cepts and theories currently thought to explain some of the jor similarities and differences of carbonate rocks in various ings. It should be emphasized, however, that many ideas in chapter are not universally accepted as fact. Even among the hors of this chapter there are several major points of disagree- nt. Generalizations about complex areas have been incorpo- d to demonstrate major principles. While these simplifications y be valid on a regional basis, they may not accurately define alized areas within a region. For details that concern specific ions, see chapters 3, 19, and 23 through 29 of this volume.

This chapter is limited to concepts selected by the authors as st significant and to examples from the North American continent. Although isolated references are made to a few studies outside North America, much of the worldwide research is not discussed. Because of space limitations, only a small fraction of the current research in carbonate hydrogeology and the related aspects of karst geomorphology, carbonate petrology, speleology, petroleum geology, civil engineering, and soil science is discussed. Many important works are not referenced, although their conclusions have been distilled and condensed within this chapter.

Reports with extensive bibliographies include: International Association of Scientific Hydrology (1967), Stringfield and LeGrand (1969), LaMoreaux and others (1970), Herak and Stringfield (1972), Burger and Dubertret (1975), Warren and Moore (1975), Dilamarter and Csallany (1977), Tolson and Doyle (1977), Milanovic (1981), Yevjevich (1981), Longman (1982), Back and Freeze (1983), Back and LaMoreaux (1983), James and Choquette (1983), Scholle and others (1983), Castany and others (1984), LaFleur (1984), LaMoreaux and others (1984), Jennings (1985), and LaMoreaux (1986).

ORIGIN OF CARBONATE SEDIMENTS

Carbonate sediments accumulate in a wide variety of environments, both marine and nonmarine. Depositional environment may have a profound influence on the properties of carbonate aquifers, because depositional setting determines texture, fabric, original porosity and permeability, and, to some extent, thickness of carbonate accumulations. Additional discussion of environments of deposition and diagenesis is in Back (this volume).

The bulk of carbonate sediments are deposited in tropical and subtropical seas where there is slight or no influx of terrigenous detritus from land areas. Marine depositional environments include (1) tidal flat, (2) beach and coastal dune, (3) continental shelf, (4) bank, (5) reef, (6) basin margin and slope, and (7) deeper ocean or basin.

Brahana, J. V., Thrailkill, J., Freeman, T., and Ward, W. C., 1988, Carbonate rocks, *in* Back, W., Rosenshein, J. S., and Seaber, P. R., eds., Hydrogeology: lder, Colorado, Geological Society of America, The Geology of North America, v. O-2.

On land the most extensive deposits of calcium carbonate collect in lakes, which may be freshwater, alkaline, or saline. In addition, some calcium-carbonate lake deposits are associated with springs. Carbonate-depositing lakes are not restricted to tropical climates, but are common in temperate latitudes. Other terrestrial carbonate deposits are caliche (soil-zone deposits) and travertine (cave, karst, and hotspring deposits).

Nearly all carbonate sediment in modern oceans is ultimately derived from calcareous algae and $CaCO_3$-producing animals living at or near the site of sediment accumulation. Some marine carbonates and the bulk of nonmarine carbonates are physicochemical precipitates and/or algae- and bacteria-induced precipitates.

Carbonate sand is commonly composed of locally derived skeletal fragments of marine organisms such as molluscs, echinoderms, corals, ostracodes, foraminifers, and red and green algae. In ancient seas, other organisms such as brachiopods, crinozoans, and trilobites were important contributors to coarser skeletal sediments. Mud-sized carbonate sediment is derived directly from certain calcareous algae or is produced by abrasion and bioerosion of larger skeletal particles.

Reef buildups occur where communities of calcareous organisms construct a skeletal framework. Although corals produce the most conspicuous reefs today, many other organisms (algae, sponges, stromatoporoids, and rudistid molluscs) were important reef builders in ancient seas.

Nonskeletal components of carbonate sands are fecal pellets, oolites, and fragments of penecontemporaneously lithified sediment (intraclasts). In some marine and nonmarine environments, carbonate mud is a physicochemical precipitate.

Commonly the quality of carbonate aquifers can be directly related to original mineralogy of the carbonate sediment because the amount of early dissolution and cementation is dependent, in large part, on the stability of the carbonate minerals. Therefore, the original mineralogy is a major constraint on the early-diagenetic processes that alter porosity and permeability. Today, shallow-marine sediments are composed predominantly of "metastable" aragonite and Mg calcite, whereas pelagic sediment is predominantly "stable" low-Mg calcite. Despite ocean-water saturation with respect to magnesite and dolomite, these minerals are unknown as primary products in the marine environment.

Because skeletal grains are irregular in shape, carbonate sediment may have extraordinarily high porosities. Modern carbonate sediment commonly has 40 to 70 percent porosity. Most limestones, however, have no more than a few percent porosity because postdepositional cementation and pressure-solution compaction tend to obliterate original porosity.

FACTORS THAT AFFECT THE EVOLVING POROSITY AND PERMEABILITY OF CARBONATE ROCKS

The porosity and permeability of carbonate rocks can be affected by more than 60 different processes and controls (Table 1). These have been grouped loosely into seven c... (1) diagenetic, (2) geochemical, (3) lithologic-strati... structural-tectonic, (5) hydrologic, (6) weathering-geo... and (7) historical geologic-chronologic. In simplistic ter... processes and controls can be considered causes in a ca... relation. The effects are the resulting distributions of por... permeability.

Innovative porosity classification schemes (Choqu... Pray, 1970; Longman, 1982) have been developed on the ... studies by carbonate petrologists and petroleum geologi... concentrate on the solid phase of the aquifer. Permeability ... fications (White, 1969, 1977; LeGrand and Stringfield 197... the other hand, tend to concentrate on the fluid phase ... characteristics of an aquifer; these classifications characte... have been the domain of hydrogeologists and karst researc...

For this chapter, subtle distinctions between types of ... ity and permeability are not important. What matters is the ... ence or absence of porosity and permeability, the degree to ... each is developed, and the factors that influenced ... development.

Quantitative representation of carbonate aquifers is typi... expressed in some terms of storativity, hydraulic conducti... and yield. Examples of the range and typical values of poro... hydraulic conductivity, and well yields are given in Tab... diverse lithologies were chosen to show the wide variation ... tween different types of carbonate rocks. Ranges of value... included to show the huge differences that may occur within ... same lithology, a phenomenon particularly noticeable in ... areas.

Figure 1 shows the generalized porosity, pore size, and hy... draulic conductivity of several types of carbonate rocks (Smi... and others, 1976). Also included is a speculative boundary line ... suggested by Ford (1980) that differentiates conditions favoring ... development of karst features (enterable cave systems, interme... diate and large surface landforms). The line originates at a rock ... pore size of about 10 microns, a value reported by Bocker (1969) ... to be the lower threshold of pore spacing necessary for significant ... flow and solvent action by water. Figure 1 emphasizes the princi... ple that wherever comparatively high primary porosity occurs ... solutional attack is widely diffused. If the solvent attack is not ... concentrated against restricted zones of permeability, the pores ... grow more or less equally. Point-centered karst forms such as ... dolines and linear cave systems cannot be produced, and they ... cannot capture additional surface water where solution is diffused ... at a scale of centimeters or less (Ford, 1980).

Diagenetic

Diagenetic factors represent an important category of proc... esses and controls that affect porosity and permeability. After ... deposition, carbonate sediments are subjected to a sequence of ... changes associated with induration and lithification. An obvious ... early physical process is compaction, which functions identically ... to the same porosity reduction mechanism as occurs in terrig...

TAB...

Geologic Factor

Diagenetic

Geochemical

Lithologic-Stratigraphi...

Structural-Tectonic

Hydrologic

Weathering Geomorph...

Historical Geologic-...

*Most ir...

ous sedime... monly is re... buried und...

Three ... ity: (1) me... breakage);

TABLE 1. PROCESSES AND CONTROLS THAT AFFECT POROSITY AND PERMEABILITY OF CARBONATE ROCKS

ogic tor	Processes	Controls	General Influence
netic	Compaction Cementation Pressure solution Solution* (includes recrystallization, inversion, micritization)	Original porosity and permeability; Original mineralogy; Grain size/surface area; Proximity to sea level (uplift or burial); Volume and rate of water movement; Fluid chemistry: pH, pCO_2, salts in solution; temperature, pressure	Influences initial distribution of porosity and permeability of indurated rock mass. Many of these are geochemical in nature; they occur very early in the history of the rock.
nemical	Solution* (dissolution) Dolomitization Dedolomitization Precipation Sulfate reduction Redox	Ground-water flux; Original porosity and permeability; Mineralogy; Fluid chemistry: pH, pCO_2, salts in solution, temperature, pressure, mineral-water saturation	Influences later development of porosity and permeability; influences water chemistry.
gic-igraphic		Layer thickness; Sequence thickness; Variability in texture (vertical); Variability in permeability (vertical); Original porosity and permeability inherited from diagenesis; Bulk chemical purity; Grain size	Influences anisotropy of rock mass, thereby resulting in zones potentially more permeable if other geologic factors are favorable.
ural-nic	Uplift Tilting Folding Jointing Faulting Metamorphism	Fracture density; Openness of fractures; Layer (permeability) orientation	Influences orientation of permeability zones. Influences integrity of confining layers. In extreme instances (metamorphism), influences existence of permeability zones.
logic	Dynamic ground-water flow*	Climatic—temperature; Climatic—precipitation; Depth of circulation; Location of boundaries; Existence of complete flow systems; Flux; Initial anisotropy-vertical variation; Springs; Surface-water/ground-water relation Recharge; Hydraulic gradient; Size of ground-water basin	Influences existence of flow systems. Influences rate of flow system evolution.
ering-norphic	Infilling (fluvial and glacial) Unloading	Topography; Relief; Soil development; Cap rock; Degree of karstification; Base level; Surface slope	Influences development of flow systems. Influences destruction of permeability by sedimentation. Influences shallow porosity-permeability development.
ical ogic-Chronologic		Sequence of events; Duration of events	Influences stage of development of specific permeability zones.

ost important.

liments. The large original porosity of the sediments com- is reduced by one to two orders of magnitude if they are under an accumulating sequence of deposits.

hree processes appear to account for this decrease in poros- mechanical compaction (grain rearrangement and grain ge); (2) chemical compaction (pressure dissolution at grain-to-grain contacts and along stylolites); and (3) redeposition of carbonate, as cement, derived through pressure dissolution. Halley and Schmoker (1983) favor chemical compaction as the dominant factor of the three.

It should be noted that chemical compaction can occur under shallow burial. Incipient pressure solution in carbonate

TABLE 2. REPRESENTATIVE VALUES OF POROSITY, HYDRAULIC CONDUCTIVITY, AND WELL YIELD FOR VARIOUS CARBONATE AQUIFERS*

Lithology	Porosity (%) "Average"	Porosity (%) Range	Hydraulic Conductivity (m/day) "Average"	Hydraulic Conductivity (m/day) Range	Well Yield (L/s) "Average"	Well Yield (L/s) Range
Carbonate mud; nonindurated	55	40 to 70	10^{-2}†	10^{-3} to 10^{-1}†	—	
Dolomite (primary)	1	0.1 to 5	10^{-2}	10^{-4} to 1	0.1	0 to
Dolomite (secondary)	3	0.1 to 20	10^{-2}	10^{-4} to 1	0.1	0 to
Tertiary limestone; fine grained, few fractures	25	20 to 35	10^{-2}	10^{-4} to 1	0.1	0 to
Paleozoic limestone; fine grained, few fractures	2	0.1 to 10	10^{-2}	10^{-4} to 1	0.01	0 to
Oolitic limestone	15	1 to 25	10^{-1}	10^{-2} to 10^{-1}	1	1 to
Holocene coral limestones	35	30 to 50	10^{3}	10^{2} to 10^{4}	10^{2}	1 to
Karstified limestone with caverns	10	5 to 50	10^{5}	10^{-1} to 10^{7}	0.1	0 to
Marble, fractured	0.7	0.1 to 2	10^{-3}	10^{-3} to 1	0.1	0 to
Chalk	30	15 to 45	10^{-2}	10^{-3} to 1	0.01	0 to

Notes:
m/day = meters per day
L/s = liters per second
"Average" commonly reported as a median or average value.

*See also Table 2, Heath, this volume.

†No measurements known; estimated from physical parameters.

Sources:
Clark, 1966
Davis and DeWeist, 1966
Davis, 1969
Smith and others, 1976
Freeze and Cherry, 1979
Matthess, 1982
Scholle, 1979

rocks has been reported from depths of 100 m (Schlanger, 1964) and 120 m (Halley and Schmoker, 1983).

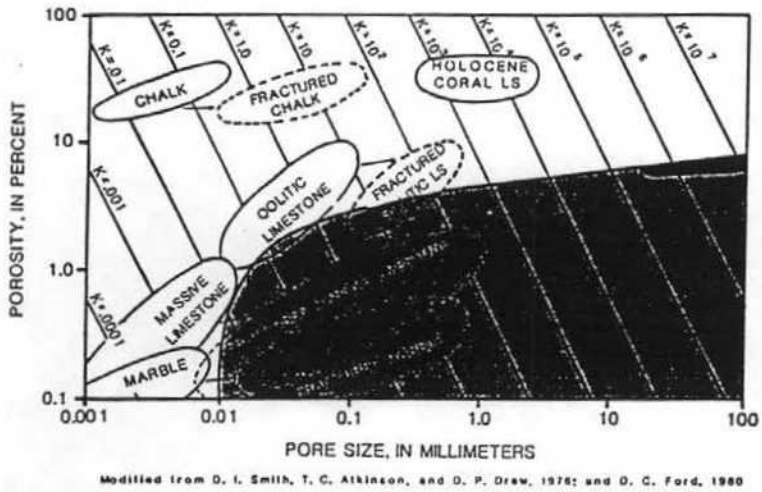
A comprehensive survey of cementation processes and products that affect marine carbonate sediments has recently been provided by James and Choquette (1983). Isotopically light $\delta^{13}C$ values suggest that cementation of some limestones occurs during burial diagenesis, with calcium carbonate being provided by pressure solution and dissolution of aragonite skeletons (Hudson, 1975). Tan and Hudson (1974) suggested the cements were emplaced by infiltrating ground water.

Because carbonate sediments commonly include metastable aragonite, substantial changes in porosity and permeability can develop during early diagenesis. Primary aragonite needles and skeletal fragments are preferentially dissolved, creating molds, and the voids later are filled by mold-occluding cement. The process results in a general overall porosity reduction, although zones of greater permeability may be concentrated during this phase.

Dissolution of more stable constituents of carbonate rocks can occur under burial conditions which favor the generation of low pH water. Moore and Druckman (1981) made a case for the enhancement of residual depositional porosity by CO_2 and H_2S generated by sulfate-reducing bacteria associated with petr migration. Incipient dissolution of this type is typically n selective because of minor differences in fabric-constituen bility owing to differences in minor-element composition texture, but advance stages of solution typically lead to non selective vug development.

Major processes that affect porosity and permeabili shown in Figure 2. The relative importance of each proc plotted as a function of depth. The most important of these esses, from a hydrogeologic standpoint, act in the sh environment, generally less than 100 m deep.

Controls on diagenesis reflect the chemistry of the roc and the immediate environment. As previously mentioned ern marine carbonate sediments are mineralogically compo aragonite, Mg-calcite, and calcite. These minerals are all sta shallow sea water but unstable or metastable in fresh Under most freshwater conditions, high Mg-calcite is th stable of these minerals, altering quickly via magnesium sion to calcite or by adding Mg ions to form dolomite. Ara is next most soluble and may dissolve to produce molds altered via neomorphism to calcite. Calcite is the most st may be dissolved, recrystallized, or remain unchanged dep



Modified from D. I. Smith, T. C. Atkinson, and D. P. Drew, 1976; and D. C. Ford, 1980

EXPLANATION

Primary

Secondary

Karst Features

Caverns

Generalized boundary of conditions that favor the development of karst features

Values of K, the theoretical hydraulic conductivity, are in meters per day. K is derived from the equation: $Q/a = K(h/L)$

where Q is the discharge,
a is the cross-sectional area,
h is the head,
and L is the length of the flow path.

K=0.1

The values are based on the assumption that the rock mass reacts as a bundle of straight, parallel capillary tubes.

Figure 1. Primary and secondary porosity, pore size, and theoretical hydraulic conductivity of selected carbonate rocks, karst features, and caverns.

n the volume and chemistry of the water. Dolomite may be issolved, altered to calcite, recrystallized, or remain unchanged epending on the same factors. Organic material and hydrocarons may modify this "normal" diagenesis by coating grains, nhibiting alteration, or changing water chemistry.

Chalk is an example of a rock that remains relatively unhanged. Chalks have an initial composition that is almost enrely low-Mg calcite, commonly with some admixture of clay. Chalks, despite their fine grain size, have great chemical stability n marine as well as nonmarine settings. Chalks can be exposed to reshwater in near-surface settings for millions of years with little r no alteration (Scholle, 1979). This eliminates much variability n the local diagenetic alteration, which is so characteristic in hallow water limestones because of local, subtle uplift and suberial exposure.

Original porosity affects secondary porosity by affording oids through which freshwater may move. Original porosity is a ery important controlling influence on secondary permeability eveloped during the early diagenetic phase. Grain size is imporant in diagenesis. The finer the grain size, the more surface area is vailable to interact with the interstitial fluids.

If carbonate sediments are exposed to fresh water relatively early after deposition, diagenesis and porosity reduction are initiated early. If the sediments remain buried and the marine pore water is not flushed, diagenetic changes tend to occur much more slowly. Under most conditions, large volumes of fresh water coupled with rapid movement of that water are needed to cause significant dissolution in carbonate rocks. These large volumes over relatively short periods of time create increasing porosity.

Many environmental factors play an important role in dissolution of carbonate rocks. The following list generalizes the most simple of these relations:

Factor	Relation to dissolution
pH of interstitial fluid	Inversely proportional
CO_2 content of fluid	Directly proportional
salts in solution	Directly proportional
temperature	Inversely proportional

The effects of all geologic controls on the early diagenetic processes result in an indurated rock with a unique original porosity and permeability distribution that reflects both composition and environment through the time of lithification of the rock mass. It is often difficult to separate diagenetic factors from geochemical factors, and many researchers do not differentiate between the

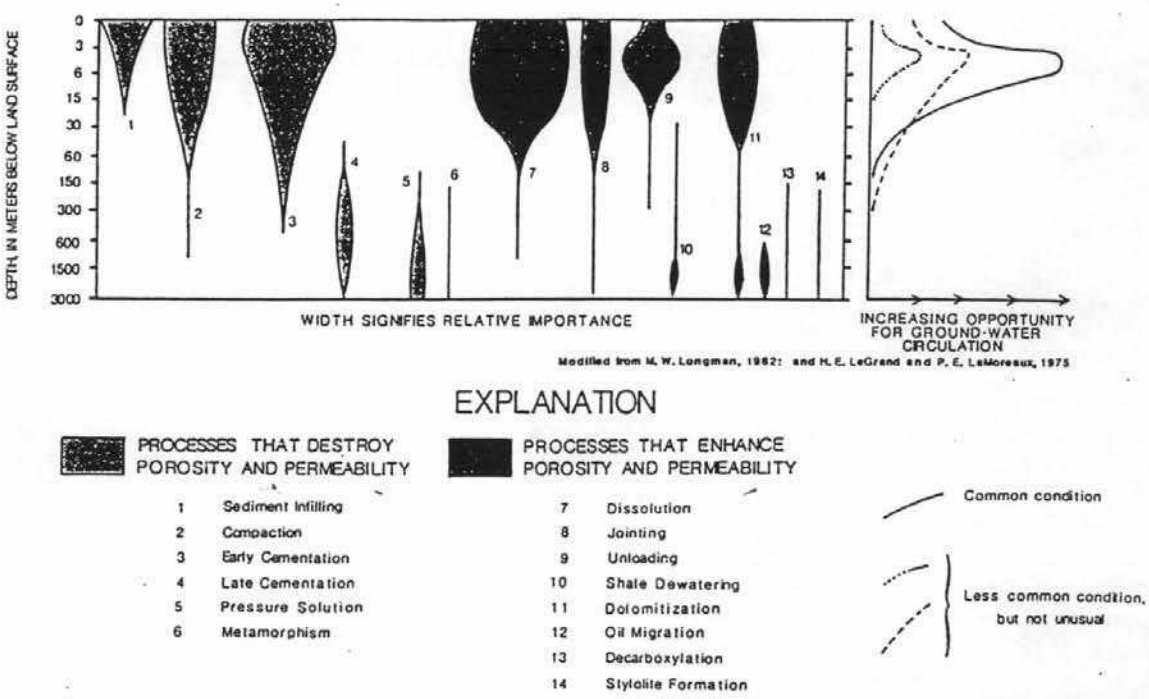


Figure 2. Relation between depth, ground-water circulation, and selected processes that destroy and enhance porosity and permeability in carbonate rocks.

two, but consider them a continuum. The distinction in this chapter is arbitrary; later postlithification processes are defined as geochemical, and early prelithification processes are defined as diagenetic.

Geochemical

Geochemical processes play a major role in the evolution of carbonate aquifers. Garrels and Christ (1965) provided a detailed description of the reactions and equilibria involved. Abundant evidence has accumulated, both from chemical and geomorphological studies of carbonate aquifers within 100 m of land surface, that dissolution by carbonic acid is the principal process occurring. The opposite process of precipitation also is important, because it results in decreased porosity and permeability. In carbonate aquifers that are deeply buried, dissolution commonly is less active. Carbonic acid is created as CO_2 from the soil zone (and to a lesser extent, the atmosphere) and is dissolved in water.

The fundamental reactions for carbonic acid-calcite chemistry are described in Chapter 43 of this volume.

Studies in the central Appalachians (Jacobson and Langmuir, 1970), Mammoth Cave region (Thrailkill, 1972), and elsewhere have shown that water in shallow carbonate aquifers generally is undersaturated with respect to calcite and in equilibrium with a P_{CO_2} somewhat higher than that of the normal atmosphere, as is the water of surface streams flowing on limestone. Although there are wide variations between sites, values of one-half calcite saturation are not atypical. In the Mammoth Cave region, although there was no clear increase in saturation with respect to calcite with distance of flow in the aquifer, Ca[illegible] increase substantially. This indicates either an addition of high[illegible] water from the vadose zone or an introduction of CO_2 to [illegible] calcite solution in the aquifer; some evidence suggests that [illegible] latter is true (Thrailkill, 1972). There also is evidence, based [illegible] vadose-zone studies, that large flows (with low P_{CO_2}) do arriv[illegible] the water table still unsaturated with respect to calcite, and that [illegible] least some vadose seepage is closed to CO_2 and can promo[illegible] solution in the aquifer (Thrailkill and Robl, 1981).

Aquifers are also found in dolomites, and the pertinent c[illegible] bonate chemistry of those aquifers deals with the mineral do[illegible] mite, and Mg^{2+} as well as Ca^{2+} in solution. In many field setti[illegible] where both types of aquifers are present in the same area[illegible] appears that dissolution and karstification in dolomites are [illegible] than in limestones. Although this appears to be true in the c[illegible] Appalachians (Parizek and others, 1971), it is less evident [illegible] southern Missouri (Imes, 1987) and the southern Appalachi[illegible] Because the solubilities of the primary minerals dolomite [illegible] calcite are nearly equal, the reason for dolomite aquifers [illegible] less soluble than limestone aquifers, where the phenomenon [illegible] curs, must be related to kinetic, textural, structural, or [illegible] factors.

In addition to solution by carbonic acid, minor solution [illegible] sulfuric acid and organic acids has been documented. The [illegible] concepts of the solution processes are the same, although [illegible] chemical components and details of the kinetics are different [illegible] effects of organic acids are generally associated with petro[illegible] evolution and migration and may be important in deep sett[illegible]

however, these are thought to be limited areally, and not significant hydrogeologically on a regional scale.

Conversion of calcium carbonate sediments to dolomite rocks occurs by means of several processes, which are collectively referred to in this paper as a single process, dolomitization. In general, dolomitization redistributes the porosity and permeability of the rock mass so that small pores become fewer but larger, thereby increasing permeability. Davies (1979) pointed out that dolomitization has a homogenizing effect on carbonate rocks. Intercrystalline porosity in dolomites is pervasive, and permeabilities in dolomites are significantly greater than those within equally porous limestone (Wardlaw, 1974).

Summaries of dolomitization models (Land, 1982; Morrow, 1982) indicate many settings in which the process has occurred, as well as diverse sources of magnesium. There is no unifying principle for these models other than the requirement for magnesium, which can be provided by seawater, Mg-calcite skeletons and cement, blue-green algae, clay minerals, and older dolomite. Environments range from sediment surfaces (evaporative), the shallow subsurface (seepage reflux; marine-fresh mixing), to deep burial settings (dewatering; illitization). All (except illitization in deep burial settings) have been documented for specific dolomites, and probably accurately explain the occurrence, the porosity, and permeability of some of these rocks.

Hanshaw and others (1971) hypothesized that the mixing-zone model accounts for some regionally extensive dolomites in the geologic record. The model calls for mixing fresh and saline ground water in a brackish zone of dispersion, thereby creating undersaturation of the ground-water solution because of nonlinearity of calcite solubility. Increased dissolution of calcite increases Ca^{2+} and CO_3^{2-} in the ground water. This dissolution and magnesium from seawater cause supersaturation with respect to dolomite in the brackish zone. This supersaturation occurring in the mixing zone environment where marine sulfate concentration waters are diluted, causes dolomite to form. In normal seawater, sulfate concentrations can inhibit dolomite formation. Sea-level changes, climatic changes, and uplift or downwarp of the rock mass could affect the position of the brackish zone in the aquifer, which would control dolomitization on a regional scale. A strong argument has been established for this process occurring in the Yucatan (Ward and Halley, 1985), as well as parts of the Floridan and the Edwards aquifers (Hanshaw and Back, 1979).

The process of dedolomitization (Back and others, 1983) involves the mineralogic evolution of a dolomite to a calcite aquifer. It occurs in an aquifer where water with low dissolved solids and high CO_2 starts dissolving calcite, dolomite, and gypsum from the mineralogic framework of the aquifer. This dissolution results in an increase in total CO_2, SO_4^{2-}, and Ca^{2+}. Because equilibrium with respect to calcite is obtained first, dolomite and gypsum continue to dissolve, contributing additional Ca^{2+} and SO_4^{2-} to the solution. Ca^{2+} combines with $COCO_2^{2-}$ to precipitate calcite, which causes the water to be undersaturated with respect to dolomite, which continues to dissolve. The process of dedolomitization can have a variable effect on the porosity and permeability and significantly affects water chemistry.

The controls on the geochemical processes are many. The basic geochemical environment, which includes abundance of CO_2, pressure, pH, temperature, salinity, and the numerous controls described in the early diagenetic phase, also apply to geochemical processes (Table 1).

It is important to emphasize that although the geochemical processes of solution and precipitation of carbonate minerals have been described as separate entities, isolated from other processes that may occur together naturally, they should not be considered as simple, unrelated processes. Many of these processes and controls commonly occur concurrently within natural hydrochemical systems, and interpretation requires an understanding of all potential interactions.

Lithologic-stratigraphic

Lithologic and stratigraphic controls play an important role in concentrating flow within specific zones of a carbonate rock, and thus influence subsequent dissolution. Although these factors tend to be passive, the effects of their control are obvious in most carbonate terranes, as shown by localization of permeability zones along bedding planes or within a single facies.

Lithology, texture, and bulk chemical purity affect the original porosity and permeability within a sedimentary sequence. Variations in these parameters define the potential for flow localization and concentration and the potential for dissolution. Properties of the rock that initially favor increased flow favor development of greater permeability.

Within any given stratigraphic sequence driven by a common fluid potential, flow will tend to be concentrated in the zones providing the least resistance. If all layers are fairly homogeneous, flow is not concentrated and the resulting permeability distribution is more evenly distributed.

Because many of the characteristics of shallow carbonate aquifers are controlled by the influx of water and sediment from the surface through conduits, the presence of overlying noncarbonate rocks in which such conduits are not developed is a major factor in inhibiting aquifer development. Many shallow carbonate aquifers in the eastern United States are bounded by such overlying rocks.

Observations in a number of carbonate aquifers show that small areas can be overlain by noncarbonate rocks without a major change in aquifer character. Large conduits can be present in the same aquifer beneath outliers of the overlying rocks as much as 2 km from the nearest contact. A classic example of this is the Mammoth Cave region, where larger aquifer conduits (now in the vadose zone due to lowering base level) are found beneath Upper Mississippian and Pennsylvanian rocks. Similar instances are known in the Inner Bluegrass Karst Region, where the aquifer in Middle Ordovician limestone is developed beneath outliers of Upper Ordovician limestones and shales. This indicates that areally distributed vertical recharge from the surface is not necessary for aquifer evolution and that near-horizontal flow in the

[redacted]

Reference No. 29

TELEPHONE CONTACT SUMMARY
DYNAMAC CORPORATION

Call made by: Nilgun Akpinar
On (Date): January 8, 1993
At (Time): 1000

Signature/Date: Nilgun Akpinar 1-8-93
Facility: Alabama By-Products Corporation

CERCLIS or EPA ID No: ALD000823179

Person(s) contacted: Darryl Jones
Title/Position: Junior Engineer
Phone: (205) 254-0500
Organization: City of Birmingham Water Department
Address (City/State): Birmingham, Alabama

GENERAL SUBJECT: Information of the City of Birmingham Water Department

CONVERSATION SUMMARY: Mr. Jones stated that the sources for the City of Birmingham Water Department (CBWD) are all surface water intakes. There is a surface water intake on the Cahaba River at the intersection of Sicard Hollow Road and Blue Lake Drive. The CBWD also buys water from the Industrial Water Board, which has surface water intakes on Inland Lake and Smith Lake.

Mr. Jones stated that the all of Tarrant City is served by the CBWD, and the present source of the water is Smith Lake. However, he said that the source varies from time to time, from Smith Lake to Inland Lake or both.

The CBWD services over one million customers. Mr. Jones suggested that I come in for a visit if I needed to see their water distribution line maps because they are too large to copy.

oil survey of

efferson County, Alabama

United States Department of Agriculture, Soil Conservation Service
in cooperation with
Alabama Agricultural Experiment Station
Alabama Department of Agriculture and Industries
Alabama Surface Mining Reclamation Commission
United States Department of the Interior, Bureau of Land Management

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other federal agencies, state agencies including the Agricultural Experiment Stations, and local agencies. The Soil Conservation Service has leadership for the federal part of the National Cooperative Soil Survey. In line with Department of Agriculture policies, benefits of this program are available to all, regardless of race, color, national origin, sex, religion, marital status, or age.

Major fieldwork for this soil survey was performed in the period 1970-80. Soil names and descriptions were approved in 1980. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1980. This survey was made cooperatively by the Soil Conservation Service, the Alabama Agricultural Experiment Station, the Alabama Department of Agriculture and Industries, the Alabama Surface Mining Reclamation Commission, and the United States Department of the Interior, Bureau of Land Management. It is part of the technical assistance furnished to the Jefferson County Soil and Water Conservation District.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

Cover: Central business district of the city of Birmingham. About one-fifth of the total land area in Jefferson County is in urban use.

contents

soil series

Issued August 1982

index to map units

summary of tables

12	Sullivan-State: Well drained soils that are moderately permeable; formed in recent alluvium

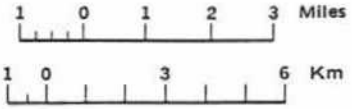
Compiled 1981

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
ALABAMA AGRICULTURAL EXPERIMENT STATION
ALABAMA DEPARTMENT OF AGRICULTURE AND INDUSTRIES
ALABAMA SURFACE MINING RECLAMATION COMMISSION
U.S. DEPARTMENT OF INTERIOR, BUREAU OF LAND MANAGEMENT

GENERAL SOIL MAP

JEFFERSON COUNTY, ALABAMA

Scale 1:190,080



LEGEND

UNDULATING TO HILLY SOILS ON PLATEAUS, MOUNTAINS AND RIDGES

1 — Nauvoo-Townley-Montevallo: Well drained soils that are moderately and slowly permeable; formed in residuum from sandstone, siltstone, and shale

2 — Fullerton-Bodine-Urban land: Well and somewhat excessively drained soils that are moderately and moderately rapidly permeable and Urban land; soils formed in residuum from cherty limestone

3 — Nauvoo-Allen-Gorgas: Well drained soils that are moderately and moderately rapidly permeable; formed in residuum from sandstone and alluvium and colluvium

4 — Gorgas-Nauvoo-Urban land: Well drained soils that are moderately rapidly and moderately permeable and Urban land; soils formed in residuum from sandstone

UNDULATING TO ROLLING SOILS IN VALLEYS

5 — Holston-Townley-Urban land: Well drained soils that are moderately and slowly permeable and Urban land; soils formed in alluvium and colluvium and in residuum from shale and siltstone

6 — Etowah-Decatur-Sullivan: Well drained soils that are moderately permeable; formed in cherty alluvium and colluvium, cherty limestone residuum, and noncherty alluvium

7 — Urban land-Tupelo-Decatur: Urban land and moderately well and well drained soils that are slowly and moderately permeable; soils formed in cherty limestone colluvium or residuum

STEEP SOILS ON MOUNTAINS, DISSECTED PLATEAUS, AND VALLEY SIDES

8 — Bodine-Fullerton: Somewhat excessively drained and well drained soils that are moderately rapidly and moderately permeable; formed in residuum from cherty limestone

9 — Montevallo-Nauvoo: Well drained soils that are moderately permeable; formed in residuum from shale, siltstone, and sandstone

10 — Bodine-Birmingham: Somewhat excessively drained and well drained soils that are moderately rapidly and moderately permeable; formed in residuum from cherty limestone, ironstone, and red sandstone

11 — Leesburg-Gorgas: Well drained soils that are moderately and moderately rapidly permeable; formed in residuum from sandstone and in colluvium

NEARLY LEVEL SOILS ON FLOOD PLAINS

12 — Sullivan-State: Well drained soils that are moderately permeable; formed in recent alluvium

Compiled 1981

JOINS PANEL 1

LOUISVILLE AND NASHVILLE RAILROAD SWITCHYARD

CORPORATE LIMITS

ZONE C

ZONE B

Dam

NASHVILLE

RM147

RAILROAD

ZONE B

ZONE A7

ZONE B

ZONE C

ZONE C

ZONE B

Jefferson County
AREA NOT INCLUDED

City of Tarrant City

47TH STREET

RM146

PARK AVENUE

JOINS PANEL 5

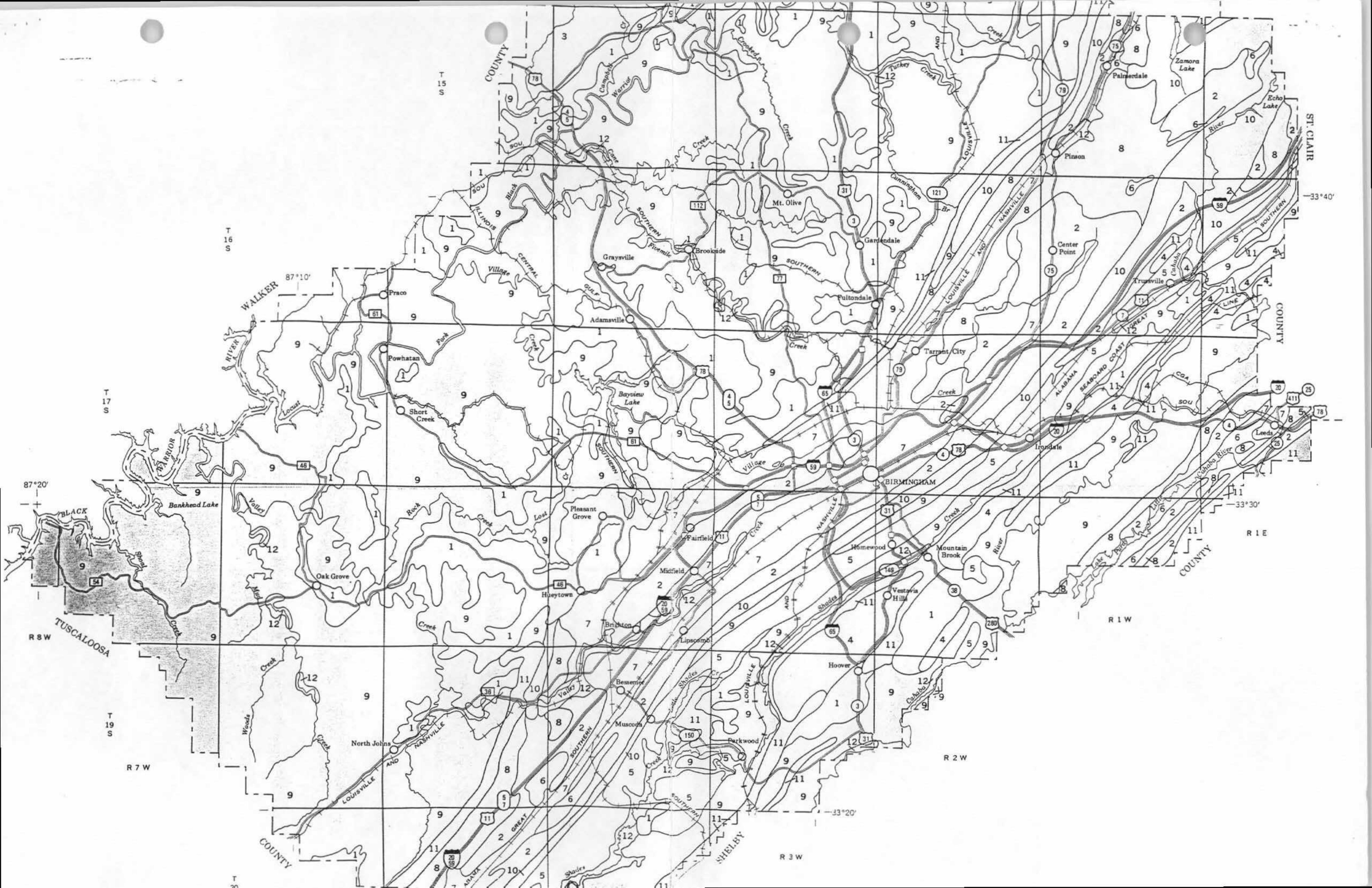
BUSH AVENUE

ALABAMA STREET

OVERTON AVENUE

JACKSON BOULEVARD

CORPORATE LIMITS


ST. CLAIR
COUNTY
WALKER
TUSCALOOSA
SHELBY
BIRMINGHAM
Pinson
Palmerdale
Zamora Lake
Echo Lake
Center Point
Trussville
Leeds
Irondale
Tarrant City
Fultondale
Gardendale
Mt. Olive
Brookside
Graysville
Adamsville
Praco
Powhatan
Short Creek
Bayview Lake
Pleasant Grove
Fairfield
Midfield
Hueytown
Brighton
Lipscomb
Bessemer
Muscoda
North Johns
Oak Grove
Bankhead Lake
Homewood
Mountain Brook
Vestavia Hills
Hoover
Parkwood
LOUISVILLE AND NASHVILLE
SOUTHERN
SEABOARD COAST
ALABAMA GREAT SOUTHERN
ILLINOIS CENTRAL GULF
Cahaba River
Warrior River
Black Warrior River
Village Creek
Valley Creek
Shades Creek
Turkey Creek
Cunningham Br
Fivemile Creek
Rock Creek
Mud Creek
Shoal Creek
Woods Creek
Locust Fork
Cane Creek
87°10'
87°20'
33°40'
33°30'
33°20'
R 1 E
R 1 W
R 2 W
R 3 W
R 7 W
R 8 W
T 15 S
T 16 S
T 17 S
T 19 S

REFERENCE # 31

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

CITY OF
TARRANT CITY,
ALABAMA
JEFFERSON COUNTY

PANEL 4 OF 6
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
010131 0004 B

EFFECTIVE DATE:
JANUARY 2, 1981

federal emergency management agency
federal insurance administration

KEY TO MAP

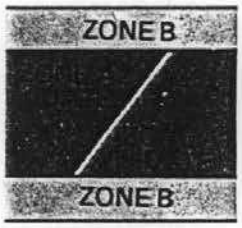
500-Year Flood Boundary

100-Year Flood Boundary

Zone Designations* With Date of Identification e.g., 12/2/74

100-Year Flood Boundary

500-Year Flood Boundary



Base Flood Elevation Line With Elevation In Feet** — 513

Base Flood Elevation in Feet Where Uniform Within Zone** — (EL 987)

Elevation Reference Mark — RM7×

River Mile — • M1.5

**Referenced to the National Geodetic Vertical Datum of 1929

*EXPLANATION OF ZONE DESIGNATIONS

ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
A0	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
A99	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.

NOTES TO USER

Certain areas not in the special flood hazard areas (zones A and V) may be protected by flood control structures.

This map is for flood insurance purposes only; it does not necessarily show all areas subject to flooding in the community or all planimetric features outside special flood hazard areas.

For adjoining map panels, see separately printed Index To Map Panels.

INITIAL IDENTIFICATION:
JUNE 28, 1974

FLOOD HAZARD BOUNDARY MAP REVISIONS:

flood hazard areas (zones A and V)
may be protected by flood control structures.

This map is for flood insurance purposes only; it does not necessarily show all areas subject to flooding in the community or all planimetric features outside special flood hazard areas.

For adjoining map panels, see separately printed Index To Map Panels.

INITIAL IDENTIFICATION:
JUNE 28, 1974

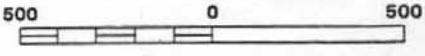
FLOOD HAZARD BOUNDARY MAP REVISIONS:
MAY 21, 1976

FLOOD INSURANCE RATE MAP EFFECTIVE:
JANUARY 2, 1981

Refer to the FLOOD INSURANCE RATE MAP EFFECTIVE date shown on this map to determine when actuarial rates apply to structures in the zones where elevations or depths have been established.

To determine if flood insurance is available in this community, contact your insurance agent, or call the National Flood Insurance Program at (800) 638-6620, or (800) 424-8872.

APPROXIMATE SCALE



NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

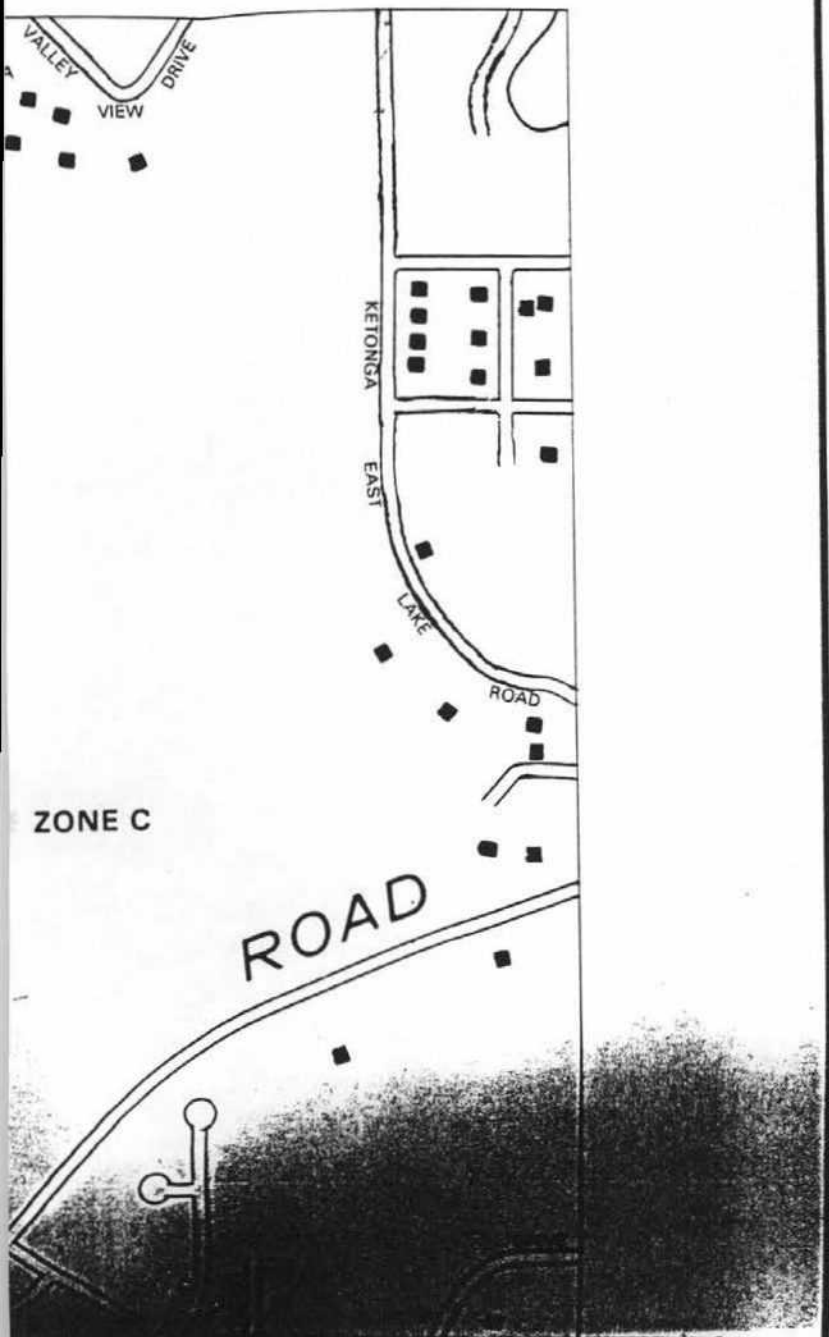
CITY OF
TARRANT CITY,
ALABAMA
JEFFERSON COUNTY

PANEL 5 OF 6
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
010131 0005 C

EFFECTIVE DATE:
JANUARY 2, 1981

federal emergency management agency
federal insurance administration

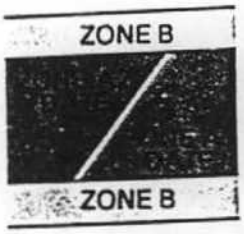


KEY TO MAP

500-Year Flood Boundary ——————

100-Year Flood Boundary ——————

Zone Designations* With Date of Identification e.g., 12/2/74



100-Year Flood Boundary ——————

500-Year Flood Boundary ——————

Base Flood Elevation Line With Elevation In Feet** ~~~~~513~~~~~

Base Flood Elevation in Feet Where Uniform Within Zone** (EL 987)

Elevation Reference Mark RM7 ×

River Mile • M1.5

**Referenced to the National Geodetic Vertical Datum of 1929

*EXPLANATION OF ZONE DESIGNATIONS

ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
A0	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
A99	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.

NOTES TO USER

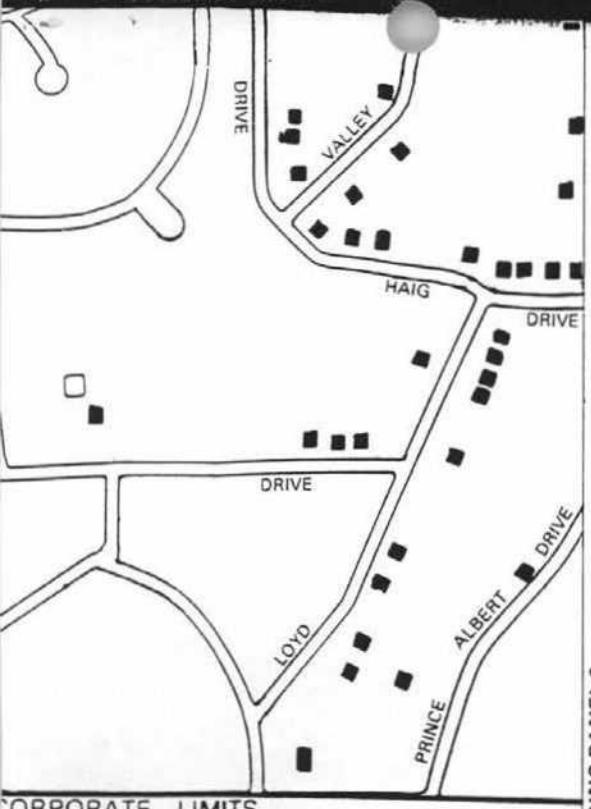
Certain areas not in the special flood hazard areas (zones A and V) may be protected by flood control structures.

This map is for flood insurance purposes only; it does not necessarily show all areas subject to flooding in the community or all planimetric features outside special flood hazard areas.

For adjoining map panels, see separately printed Index To Map Panels.

INITIAL IDENTIFICATION:
JUNE 28, 1974

FLOOD HAZARD BOUNDARY MAP REVISIONS:
MAY 21, 1976



CORPORATE LIMITS

JOINS PANEL 6

Panels.

INITIAL IDENTIFICATION:
JUNE 28, 1974

FLOOD HAZARD BOUNDARY MAP REVISIONS:
MAY 21, 1976

FLOOD INSURANCE RATE MAP EFFECTIVE:
JANUARY 2, 1981

Refer to the FLOOD INSURANCE RATE MAP EFFECTIVE date shown on this map to determine when actuarial rates apply to structures in the zones where elevations or depths have been established.

To determine if flood insurance is available in this community, contact your insurance agent, or call the National Flood Insurance Program at (800) 638-6620, or (800) 424-8872.

APPROXIMATE SCALE

500 0 500 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

JOINS PANEL 2

ZONE C

ZONE B

ZONE B

ZONE B

Jefferson County
AREA NOT INCLUDED

RAILROAD

SPRINGDALE

538

540

BLACK CREEK ROAD

RM153

ZONE B

RM164

Pigeon Creek

ZONE A7

ZONE B

536

ZONE A7

539

DRIVE

533

534

537

NASHVILLE

ZONE B

79

LOUISVILLE AND

RM154

ELIZABETH

BETHEL

ROAD

FORD

AVENUE

ZONE C

EAST

AVENUE

ZONE B

PINSON

WHORTON

SLOAN

BOULEVARD

ZONE C

THOMASON

AVENUE

AVENUE

AVENUE

LAKE

MOUNTA

ELM

JACKSON

AVENUE

VIRGINIA

AVENUE

HANOVER

MAPLE

AVENUE

AVENUE

RM163

PARK

OVERTON

STREET

AVENUE

BURLINGTON

AVENUE

PROSH

AVENUE

AUBURN

AVENUE

STREET

STREET

AVENUE

FULTON

AVENUE

ZONE C

CORPORATE LIMITS

AVENUE

WESTERLY

AVERLY

AVENU

ETOWA

ST

JOINS PANEL 4

Water Resources Data Alabama

Water Year 1990

by J.L. Pearman, F.C. Sedberry, V.E. Stricklin, and P.W. Cole

U.S. GEOLOGICAL SURVEY WATER-DATA REPORT AL-90-1
Prepared in cooperation with the Alabama Department of Environmental Management, the Alabama Highway Department, and with other State, municipal, and Federal agencies

U.S. DEPARTMENT OF THE INTERIOR

MANUEL LUJAN, JR., Secretary

U.S. GEOLOGICAL SURVEY

Dallas Peck, Director

For information on the water program in Alabama write to
District Chief, Water Resources Division
U.S. Geological Survey
520 19th Avenue
Tuscaloosa, Alabama 35401

1991

02457595 FIVEMILE CREEK NEAR REPUBLIC, AL--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	372	24	69	192	59	232	137	212	30	679	30	31
2	169	22	60	114	57	162	109	69	30	2090	30	70
3	71	20	55	145	56	126	98	53	31	744	31	24
4	50	410	50	108	51	644	548	52	31	511	29	23
5	39	292	47	87	96	522	352	284	50	275	30	23
6	35	67	46	106	113	258	178	125	288	180	27	24
7	32	45	43	80	302	178	150	75	49	149	34	24
8	30	41	41	94	138	139	331	60	129	164	28	25
9	26	37	39	151	104	114	245	62	75	111	27	25
10	25	35	38	276	88	98	161	107	47	89	26	24
11	27	30	36	534	80	87	129	56	55	91	27	76
12	27	30	35	531	71	80	110	50	48	73	25	29
13	23	50	36	783	68	75	95	47	43	73	24	42
14	21	33	36	304	62	71	86	61	65	66	28	137
15	21	32	36	318	59	69	112	64	591	59	31	64
16	18	60	35	179	55	63	84	49	175	52	28	32
17	20	50	33	139	52	58	75	45	92	50	29	28
18	22	36	30	120	57	56	71	42	65	49	27	27
19	31	35	32	102	58	51	68	41	55	57	26	28
20	21	907	32	88	60	53	68	61	e700	93	24	27
21	34	132	33	75	297	194	60	49	e900	50	24	147
22	25	83	32	68	115	112	57	44	e350	62	26	229
23	19	67	150	64	88	229	53	44	199	47	25	88
24	25	59	67	61	76	154	51	36	132	41	24	47
25	22	49	53	56	68	119	51	36	101	40	25	110
26	20	62	45	52	66	98	52	34	79	37	24	124
27	23	318	44	51	152	88	48	33	68	36	23	65
28	25	168	64	48	1270	80	47	31	62	35	23	51
29	27	101	50	45	---	266	44	30	57	33	29	82
30	20	84	62	124	---	582	42	30	54	30	27	110
31	21	---	248	67	---	185	---	30	---	30	24	---
TOTAL	1341	3379	1677	5162	3818	5243	3712	2012	4651	6096	835	1836
MEAN	43.3	113	54.1	167	136	169	124	64.9	155	197	26.9	61.2
MAX	372	907	248	783	1270	644	548	284	900	2090	34	229
MIN	18	20	30	45	51	51	42	30	30	30	23	23
CFSM	.83	2.17	1.04	3.21	2.63	3.26	2.38	1.25	2.99	3.79	.52	1.18
IN.	.96	2.42	1.20	3.70	2.74	3.76	2.66	1.44	3.33	4.37	.60	1.32

WTR YR 1989 TOTAL 39762 MEAN 109 MAX 2090 MIN 18 CFSM 2.10 IN. 28.50

e Estimated

Republic, AL is approximately 11 miles downstream from Tavrant City.

REFERENCE # 34

TELEPHONE CONTACT SUMMARY
DYNAMAC CORPORATION

Call made by: Nilgun Akpinar
On (Date): September 24, 1993
At (Time): 1705

Signature/Date: Nilgun Akpinar 9-24-93
Facility: Alabama By-Products Corporation
Tarrant City, Jefferson County, Alabama
CERCLIS or EPA ID No: ALD000823179

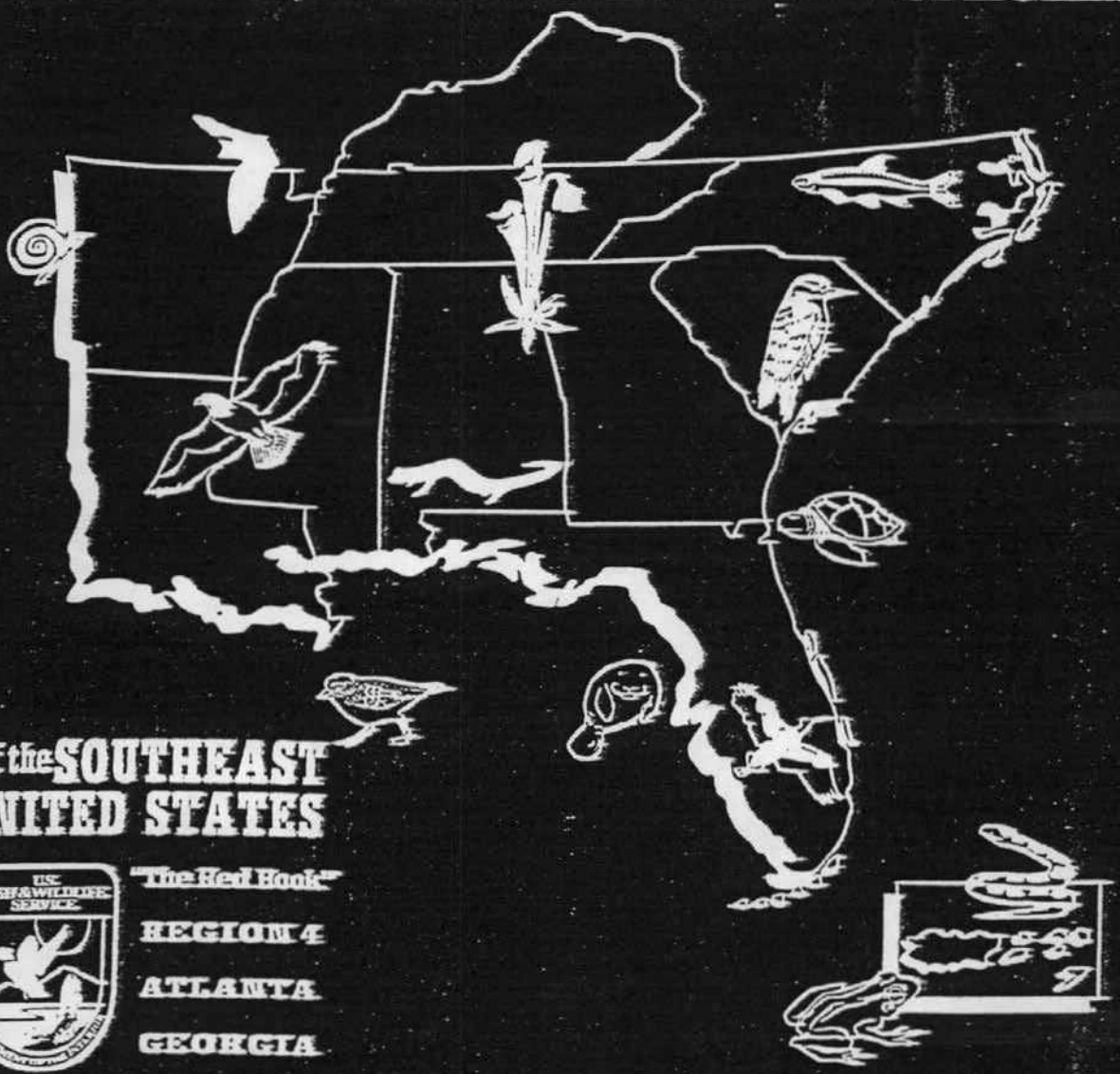
Person(s) contacted: Jerry Moss
Title/Position: Biologist
Phone: (205) 339-5716
Organization: Alabama Department of Conservation & Natural Resources - Game & Fish Division
Address (City/State): Birmingham, Alabama

GENERAL SUBJECT: Information on fishing in Five Mile Creek in Tarrant City, Alabama

CONVERSATION SUMMARY: Mr. Moss stated that fishing does occur in Five Mile Creek in Tarrant City. However, he stated that it is done only by the locals and not for commercial purposes. He informed me that this water body receives alot of industrial runoff from facilities in the area, and that the fish in it are not too healthy. He stated that he has often seen dead fish floating on the surface of the water.

REFERENCE # 35

ENDANGERED & THREATENED SPECIES



of the SOUTHEAST UNITED STATES

"The Red Book"

REGION 4

ATLANTA

GEORGIA

ENDANGERED AND THREATENED SPECIES

OF THE

SOUTHEASTERN UNITED STATES

(THE RED BOOK)

Prepared by:

U.S. Fish and Wildlife Service
Southeast Region
Atlanta, Georgia

January 1992

Availability Unlimited
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09/30/91

Federally Listed Species By State

ALABAMA

(E=Endangered; T=Threatened; CH=Critical Habitat determined)

Mammals	General Distribution
Bat, gray (Myotis grisescens) - E	Extreme North, East
Bat, Indiana (Myotis sodalis) - E	Extreme North
Manatee, West Indian (Trichechus manatus) - E	Coastal waters
Mouse, Alabama beach (Peromyscus polionotus ammobates) - E,CH	Coastal; Baldwin
Mouse, Perdido Key beach (Peromyscus polionotus trissyllepsis) - E,CH	Perdido Key
Panther, Florida (Felis concolor coryi) - E	Entire state
Whale, finback (Balaenoptera physalus) - E	Coastal waters
Whale, humpback (Megaptera novaeangliae) - E	Coastal waters
Whale, right (Eubalaena glacialis) - E	Coastal waters
Whale, sei (Balaenoptera borealis) - E	Coastal waters
Whale, sperm (Physeter catodon) - E	Coastal waters
Birds	
Eagle, bald (Haliaeetus leucocephalus) - E	Entire State
Falcon, American peregrine (Falco peregrinus anatum) - E	North
Falcon, Arctic peregrine (Falco peregrinus tundrius) - T	Entire State
Plover, piping (Charadrius melodus) - T	Coast
Warbler, Bachman's (Vermivora bachmanii) - E	Entire State
Wood, stork (Mycteria americana) - E	Entire State
Woodpecker, ivory-billed (Campephilus principalis) - E	South, West Central
Woodpecker, red-cockaded (Picoides [=Dendrocopos] borealis) - E	Entire State
Reptiles	
Alligator, American (Alligator mississippiensis) - T (S/A)*	Coastal plain

*Alligators are biologically neither endangered nor threatened. For law enforcement purposes they are classified as "Threatened due to Similarity of Appearance." Alligator hunting is regulated in accordance with State law.

	General Distribution
Darter, snail (Percina tanasi) - T	Madison and Jackson Counties (Paint Rock R.)
Darter, Watercress (Etheostoma nuchale) - E	Jefferson County
Shiner, blue (Cyprinella caerulea) -T	Upper Coosa River System: Weogufka and Choccolocco Creeks, lower reach of Little River
Sturgeon, Gulf (Acipenser axyrhynchus) - T	Alabama River System, Mobile River System
Mollusks	
Mussel, Alabama lamp pearly (Lampsilis virescens) - E	Paint Rock River, Estill Fork, Hurricane Creek, Larkin Fork
Mussel, fine-rayed pigtoe pearly (Fusconaia cuneolus) - E	Paint Rock River
Mussel, inflated heelsplitter - Potamilius inflatus - T	Tombigbee and Black Warrior Rivers
Mussel Judge Tait's (Pleurobema taitianum) - E	Tombigbee River (bendway in Sumter County), Sipsey River
Mussel, Marshall's (Pleurobema marshalli) - E	Tombigbee River (bendway in Sumter County)
Mussel, orange-footed pimpleback (Plethobasus cooperianus) - E	Tennessee River
Mussel, pale lilliput pearly (Toxolasma [Carunculina] cylindrella) - E	Paint Rock River, Estill Fork, Hurricane Creek
Mussel, penitent (Epioblasma [= Dysnomia] penita) - E	Tombigbee River (bendway in Sumter County), and Buttahatchie River
Mussel, pink mucket pearly (Lampsilis obiculata) - E	Tennessee and Paint Rock Rivers
Mussel, rough pigtoe pearly (Pleurobema plenum) - E	Tennessee River

REFERENCE # 36

TELEPHONE CONTACT SUMMARY
DYNAMAC CORPORATION

Call made by: Nilgun Akpinar
On (Date): January 27, 1993
At (Time): 1450

Signature/Date: Nilgun Akpinar 1-27-93
Facility: Alabama By-Products Corporation
Tarrant City, Jefferson County, Alabama
CERCLIS or EPA ID No: ALD000823179

Person(s) contacted: Lisa Swainger
Title/Position: Secretary
Phone: (205) 323-5461
Organization: Birmingham Chamber of Commerce
Address (City/State): Birmingham, Alabama

GENERAL SUBJECT: Size of Alabama By-Products Corporation

CONVERSATION SUMMARY: Ms. Swainger stated that Alabama By-Products Corporation has been a part of the Chamber of Commerce since 1977. As of 1992, they have 2,600 employees. There is no information on the size of the plant.

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Enter the next ring distance
GEMS>

Enter program execution mode: B (batch) or I (interactive)
GEMS> I


ABC COKE
LATITUDE   33:35: 4   LONGITUDE   86:46:50      1980 POPULATION

                                                                    SECTOR
KM  0.00-.400 .400-.810 .810-1.60 1.60-3.20 3.20-4.80 4.80-6.40     TOTALS
--- --------- --------- --------- --------- --------- --------- ---------
S 1         0         0         0      1377      1429      1336      4142
S 2         0         0         0         0      3923      5535      9458
S 3       211       702      2373      2282      4901     11854     22323
S 4         0         0      1885      4541      7423     17019     30868
S 5         0         0         0      3279      5604      9044     17927
S 6         0         0         0       879         0      2057      2936
    --------- --------- --------- --------- --------- --------- ---------
RING      211       702      4258     12358     23280     46845     87654
TOTALS

press RETURN to continue
 Alt-Z FOR HELP| IBM PC   | FDX |  2400 E71 | LOG CLOSED | PRINT OFF | ON-LINE
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REFERENCE # 38

TELEPHONE CONTACT SUMMARY
DYNAMAC CORPORATION

Call made by: Mitch Cohen Signature/Date: Mitch Cohen 10/29/93
On (Date): October 29, 1993 Facility: ABC Coke
At (Time): 0850 EPA ID No: ALD000823179

Person(s) contacted: Fred Carr, Maintenance Superintendent and Darryl Jones, Junior Engineer
Phone: (205) 254 - 0500
Organization: City of Birmingham Water Department
Address (City/State): Birmingham, Alabama

GENERAL SUBJECT The distribution area for the Birmingham water department

CONVERSATION SUMMARY Mr. Carr told Mitch Cohen that the Birmingham water department serves all of Jefferson County, and portions of Blount, Shelby and Walker counties. Cohen asked Carr about water distribution for the cities of Gardendale, Fultondale, New Castle, Walker Chapel and Sayerton, which are all located along the 4-mile radius of ABC to the north, northeast and west. Mr. Carr said that all the cities were served by Birmingham and very few private wells were located within 4 miles of Tarrant City, near the center of the study area. Those that may have wells most likely tap into the Birmingham system, Carr told Cohen.

Mr. Jones, who maintains all the Birmingham Water Department distribution maps, verified all the information stated by Mr. Carr.